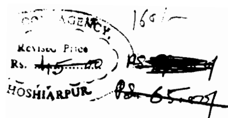
विश्वेश्वरानन्द संस्थान-प्रकाशनाऽऽवलिः—१८९

विश्वेश्वरानन्द-भारतभारती-ग्रन्थमाला—९

Vishveshvaranand Indological Series—9



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Editor — VISHVA BANDHU

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Studies in Indian Cultural History

VOLUME I

BY

P. K. GODE,

M.A., D. Litt. (h.c., Paris)

D. Wujastyk
1991

होशिआरपुरम्

HOSHIARPUR

विश्वेश्वरानन्द-वैदिक-शोध-संस्थानम्

Vishveshvaranand Vedic Research Institute

प्रकाशक-संकेतः

विश्वेश्वरानन्द-वैदिक-शोध-संस्थानम्,

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1961



Dr.

Parashuram Krishna

Gode

Born : 11 July, 1891

Died : 28 May, 1961

A most pathetic interest attaches to the publication of this volume in that its learned author passed away within twentyfour hours of his having addressed his last letter in connection with it to the present writer. The letter which had been signed at and posted from Poona on 27 May, 1961, was received at Hoshiarpur on 29 May, 1961. And, in between, what an irony of this mysterious phenomenon known as 'life', our dearest Dr. Gode was declared 'no more' on 28 May, 1961 at 11.20 A. M. by the doctors attending on him in a hospital at Poona !

He had been apparently all right till the previous midnight when his heart first started giving a warning of the coming catastrophe. However, he remained quite conscious till he breathed his last, may be, without even feeling that he would not breathe any more. So, there could be no question of any thought crossing his mind at that moment except, possibly, his keen desire to hasten back to his duty by his desk. For, during the past full forty years and more, he had most implicitly been following the Vedic precept of constant activity (*Kurvánnevéha kármāṇi jijīviṣéechatáṃ sámāḥ*—White Yajurveda 40, 2). Yet, to paraphrase another Vedic utterance (*madhyá kártor vitataṃ sáṃ jabhāra*

—Ṛgveda 1, 115, 4), the Glory that was Godeji was withdrawn while the switch of Action was still on. Would that he could live longer in our midst! But, alas, that was not to be! The very last point to which his frame which had remained predisposed to asthma throughout could be dragged by his iron will had now been reached, irrevocably. Therefore, as the similarly grief-stricken Vedic poet, Kavaṣa had burst out (*Ná devā́nām áti vratám, śatā́tmā ca ná jīváti; Táthā yujā́ vi-vāvṛte*—Ṛgveda **10**, 33, 9), we must resign ourselves to this sad bereavement which has befallen us under the inscrutable working of the Law Universal that brooks no break, not even a brake. Still how sad that this humble person to whom he was pleased only the other day to dedicate, so lovingly, this very volume, should have to prefix itself with this obituary note about him!

Collected Works of Dr. P. K. Gode

Possibly, the decision taken a decade back by his friends and admirers to present him with a Commemoration Volume on his 60th birthday had reacted on his subconscious mind in a way which led him to start collecting and editing his five hundred odd research papers towards their publication in several volumes, that is to say, to packing up and getting ready for the zero hour. However, even though he did succeed in getting the great satisfaction of seeing this huge task quite forging ahead towards its well secured consummation, he could witness only four of the volumes coming out before his eyes, the three more as in the schedule being still in the press when he closed his eyes for good.

The said seven volumes have been grouped together under two separate titles as follows: (1) Studies in Indian Literary History, Vols. I-III and (2) Studies in Indian Cultural History, Vols. I-IV. Bharatiya Vidya Bhawan has published Vols. I and II and Prof. Gode Works Publication Committee Vol. III of the former work. The V. V. R. Institute has just published Vol. I of the latter work of which the said Prof. Gode W. P. Committee has already published Vol. II and is going to publish in due course Vols. III and IV.

At present, 5-volume sets, priced at Rs. 115/- each, can be had of Vishveshvaranand Book Agency, P. O. Sadhu Ashram, Hoshiarpur (Pb. India).

V. V. R. INSTITUTE,
HOSHIARPUR.
15-6-1961.

VISHVA BANDHU

FOREWORD

I am a great admirer of Dr. Parashuram K. Gode, the learned writer of the **50** papers included in the present volume which is Volume One of his papers, grouped together for purposes of publication in a book-form under the title "***Studies in Indian Cultural History***" and Volume Four of his "***Collected Works***" now under progressive publication. During the past over four decades that he has been occupying with great distinction the Curatorial chair at the Bhandarkar Oriental Research Institute, Poona, he has set an example of ideal devotion to Sarasvatī (Goddess of Learning) dedicating to her exclusive service, literally, more than one-half of every twenty-four hours that he has had at his disposal. And, all this he has done most patiently, unassumingly and silently. It is a matter of great rejoicing that the mid-night oil that he has burnt, so profusely, paying its price in maximum self-surrender, has produced an exceptionally bright light which bids fair to grow and glow for ever, bringing ever fresh glory to his name. He is at once the envy of and the beacon for the hundreds upon hundreds of the very inquisitive fellow-workers in his varied field who would fain follow in his footsteps but wonder, at every turn, how this hero of their hopes had managed to mould his pen to turn out the five centuries of his extremely learned papers.

Whenever there comes my way an occasion to go to Poona, I always feel duty-bound to make a call on this great scholar to pay my respects to him. It was in the course of one of these calls, made in 1954, that I made an offer, to which he was pleased to agree, that our Institute might publish one volume of his papers, dealing with the cultural history of our country. I am happy with the appearance of the present volume which marks the successful consummation of the necessary efforts that our Institute has since been able to make in this direction. This volume is being issued as Number Fourteen in the

Vishveshvaranand Indological Series which, besides the two other research series, namely, the *Shāntakuṭī Vedic Series* and the *Woolner Indological Series*, is being run by the Institute.

I am very thankful to Shri Godeji for having been pleased to give this most welcome opportunity to our Institute to show to him by including this volume in our publication programme our greatest respect and regard for the yeoman's service he has so sincerely rendered to the cause of Indological study and research. I would also record here my greatest personal appreciation of the valuable co-operation extended by my colleagues in the Printing and the Publication Departments of our Institute towards production of this volume in proper form and according to schedule.

SADHU ASHRAM,
HOSHIARPUR,
March 5, 1961.

VISHVA BANDHU,
General Editor & Director,
V. V. R. Institute.

PREFACE

I have great pleasure in presenting to the world of scholars this fourth volume in the series of my Collected Works. It is Volume I of my *Studies in Indian Cultural History*. The first three, being Volumes I—III of *My Studies in Indian Literary History*, were published between 1954 and 1956.

In November 1954, my esteemed friend, Prof. Vishva Bandhu ji, Honorary Director of Vishveshvaranand Vedic Research Institute, Hoshiarpur (Panjab) was in Poona, when he met me and inquired about the progress of the Volumes I and II of my Studies, which had been undertaken for publication in the *Singhi Jain Series* by my affectionate friend, Muni Shri Jinavijayaji, Honorary Director of Bhāratīya Vidyā Bhavan, Bombay. I showed him both these volumes in a completed form to his great joy and satisfaction. During our talk, he was good enough to offer to publish in the well-known *Vishveshvaranand Indological Research Series* of his Institute a volume of my studies containing the articles on the cultural history of India. I thanked him for this friendly gesture and promised to prepare the press-copy of the desired volume as soon as I was free from the work of editing Volume III of my Collected Works for which funds had been collected by my loving friends, Dr. A. D. Pusalker and Prof. N. A. Gore. This volume was subsequently published in 1956. The press-copy of the present volume was sent to Prof. Vishva Bandhuji on the 16th January, 1956. Its printing has since been steadily and satisfactorily carried out by the Printing Department of the V. V. R. Institute. My best thanks are due not only to Prof. Vishva Bandhuji but also to the workers of his Printing Department for the neat and careful printing of this volume.

The present volume contains three groups of my articles bearing on Indian cultural history, *viz*. (1) Studies in the History of Indian *Gandha-śāstra* (science of cosmetics and perfumery),

(2) Studies in the History of Tambola and (3) Studies in the History of Indian Plants. Subjects like the history of Indian cosmetics and perfumery and the history of Indian plants pertain, properly, to the history of Indian technical sciences, which requires for its reconstruction close co-operation of Indologists and scientists. I owe my interest in these subjects, entirely, to my contact with two eminent scientists in India, *viz.* Dr. Sadgopal (now Deputy Director [Chemicals] of the Indian Standards Institution, New Delhi) and that renowned botanist, the late Dr. Birbal Sahni of the University of Lucknow. It was a fortunate moment when Dr. Sahni read my paper on the *History of the Fig* published in the *New Indian Antiquary* and wrote to me that I would be doing a great service to Indian botany if I published similar papers on other plants of medical and nutritive value. Subsequently, he met me at the time of the Science Conference in Poona and discussed with me the details of his suggested plan. I published several papers on the history of Indian plants and sent him their copies up to the moment of his sad demise some years ago. It is unfortunate that he should not be with us to see all my plant studies in the present book form. However, I record here my grateful homage to Dr. Sahni, whose contact first inspired me to carry on these studies.

In my Preface to the recently published Volume V of my Collected Works, I have given a table showing the progress of the publication of these volumes. With the publication of the present volume, five out of the six volumes mentioned in that table are now in the hands of the readers.

The sixth one is also now in the press and is expected to be out in another year through the benefaction of my esteemed friend, Prof. K.K. Handiqui (ex-Vice-Chancellor of the Gauhati University, Assam), who has further expressed his desire to help me towards the publication of one more volume. I cannot adequately thank Prof. Handiqui for this voluntary help.

I owe my academic existence entirely to the good will and active co-operation of my learned friends, who have helped me

in diverse ways in the progress of my research work and its publication during the last forty five years of my life. The volumes of my studies which have been published so far might serve as a good index to all this good will and co-operation, so lovingly extended to me. Among these scholar-friends, Prof. Vishva Bandhuji stands in the front rank by virtue of his scholarship and capacity to organise scholarship and direct it in productive channels as vouched by his unremitting toil in the cause of his Institute during the last four decades. His name "*Vishva Bandhu*" is very significant as he has proved to be a benefactor or *Kalyaṇamitra* of many of his scholar-friends like myself in the field of Oriental learning. Ever since my contact with him forty years ago, my esteem for his good work and high regard for the work done by his brother-workers under his inspiration has been increasing more and more. I have therefore taken the liberty of dedicating the present volume to him as a permanent token of our friendship. I know that if I had asked his permission for it, he would have hesitated and not approved of this idea owing to his being the General Editor of the *V.I.R. Series* in which this volume is being published.

Historical studies without necessary indices cannot be easily used by research scholars. It was, therefore, my good fortune when Dr. A. D. Pusalker (now Director of the Post-Graduate and Research Department of the B. O. R. Institute) and Prof. N. A. Gore (now Librarian of the Marathwada University, Aurangabad) volunteered about eight years ago to prepare elaborate indices for all the volumes. The General Index prepared by Dr. Pusalker to each of the four volumes, previously published, and to the present volume has been a very painstaking work. The Subject Index to all these volumes prepared by Prof. Gore has been equally so. I cannot adequately thank both these learned friends for this labour of love, which has enhanced the reference value of my volumes, and also for having helped me in the correction of the proofs of the present volume. Similarly, Shri S. N. Savadi of the B. O. R. Institute deserves my most grateful thanks for his voluntary collaboration in the correction

of the proofs of the present volume as also those of the previous four volumes.

In conclusion, I have to thank most cordially the authorities of the V. V. R. Institute for having accepted this volume for publication in their *V. I. R. Series.* Words fail to express my gratitude to my affectionate friend, Vishva Bandhuji for the help he has given me in all my academic work during the last forty years including the publication of the present volume.

B.O.R. Institute, P. K. GODE
POONA. 4.
26th January, 1961.

CONTENTS

TO

MY ESTEEMED FRIEND

VISHVA BANDHU

STUDIES IN THE
HISTORY OF INDIAN GANDHA-ŚĀSTRA

(SCIENCE OF COSMETICS AND PERFUMERY)

1. Indian Science OF Cosmetics and Perfumery*

Sanskrit literature is full of references to cosmetics and perfumes that were used by ancient Indians especially during the last three thousand years for which literary sources are available for study and research. The history of the technical sciences of ancient Indians is being gradually reconstructed. The work of such reconstruction becomes easy when any regular treatises on different technical sciences written by ancient or mediaeval authors become available to research scholars for analysis and evaluation in the light of modern scientific research. The late Sir P. C. Ray, the renowned scientist of India, wrote his *History of Hindu Chemistry* in two volumes on the strength of many treatises on Indian alchemy (*rasa-vidyā*). Similarly, some books have been written on Indian architecture, mathematics, painting, etc. by competent scholars. For all these books regular textual evidence about these sciences and arts was available either in the form of complete systematic treatises or in the form of summaries of their contents incorporated in Sanskrit works of the encyclopaedic type like the *Bṛhatsaṁhitā* of Varāhamihira (A. D. 500), the *Mānasollāsa* of King Someśvara (A. D. 1130), the *Agnipurāṇa* and others. So far as I know no special treatises on Indian Science of Cosmetics and Perfumery were known to Indologists till my discovery in 1944 of two such treatises devoted to this subject.

Gandhaśāstra means the "science of cosmetics and perfumery" and *Gandhayukti* means the "art of preparing different cosmetics and perfumery." The two treatises discovered by me are (1) the *Gandhasāra* of Gaṅgādhara and (2) *Gandhavāda* (anonymous) with a commentary in Marathi, the vernacular of the Deccan to-day. I have published special articles on these treatises, which deal both with the science and art of cosmetics and perfumery. According to my evidence these treatises were composed some time between A. D. 1200 and 1600 on the basis of earlier texts, some of which are partly extant, and were composed between A.D. 500 and 1000. Subsequent to my discovery of these two treatises several Indian scholars have taken from me copies of these Sanskrit treatises with a view to editing them.

Gaṅgādhara, the author of the treatise *Gandhasāra* referred to

International Perfumer, 1951, No. 3, pp. 1-6.

above, defines in a beautiful stanza the scope and purpose of the Indian science and art of cosmetics and perfumery as follows :—

"This science of cosmetics and perfumery is helpful in the worship of gods, which requires the use of auspicious perfumes and incense ; it contributes to the pleasures of men; it leads to the attainment of three ends of human life (viz., religious merit, worldly prosperity and sensual enjoyments); it removes one's own poverty; it contributes to the pleasures of kings and it gives the highest delight to the minds of accomplished ladies."

We have to understand the Indian science of cosmetics and perfumery in the light of the above remarks. I leave it to the readers of this journal to judge if they are applicable to the history of cosmetics and perfumery in Europe. At any rate they are true in respect of the use of cosmetics and perfumery in India to-day.

The manufacture and trade in cosmetics and perfumes was in a flourishing condition in ancient and mediaeval India. The celebrated collection of moral tales called the *Pañcatantra* in Sanskrit, which is about fifteen hundred years old, contains a stanza which vouches for the prosperity attained by the dealers in Cosmetics and Perfumes. I give below an English rendering of this stanza :—

> "Of all trades the trade of the perfumer is the best ; other trades like those of dealers in gold etc. are of no avail. In the case of the trade in cosmetics and perfumery what one purchases for one (rupee) can be sold for hundred (rupees)."

I can vouch the correctness of these remarks from my own experience of some of the sellers of scented oils and *attars* in my school days. These sellers used to go from village to village with boxes of bottles containing scented oils and *attars* and small empty spare bottles which were used for selling these oils and *attars* to customers in villages. Pure sesame oil was poured into these small bottles. Wooden needles with cotton swabs at their ends were dipped into the different bottles of scented oils and then dipped into the bottles full of sesame oil. In this way the trader can prepare hundred bottles of scented oils for his customers, consisting generally of ladies and children. The head of the family had to pay down though reluctantly, the heavy prices of the different scents purchased in this way, not so much to please himself as to create an agreeable atmosphere in the house especially during the Daśaharā and Divālī festivals, when these sellers of scents moved about with a view to finding a sure sale for their scented goods. The scent disappeared from the purchased bottles in a few days and pure sesame oil was left behind much to the chagrin of

the head of the family who had paid cash for it rather disproportionately, if not extravagantly, from his poor purse.

The history of Indian Cosmetics and Perfumery cannot be accurately reconstructed without understanding the history of all aromatic ingredients which were used in the manufacture of cosmetics and perfumery. As many of these ingredients have medical properties they are mentioned in oldest Indian medical treatises like those of *Caraka* and *Suśruta* with their therapeutic values. The Indian *Gandhaśāstra* or the science of odour (cosmetics and perfumery) is thus a part of the Indian Medical Science or Āyurveda (Science of life). Consequently the history of every aromatic ingredient (*gandha-dravya*) is a part of the history of *Indian Materia Medica* which has not been reconstructed scientifically in respect of each item of this *Materia Medica.* I have been studying this history of the several items of this *Materia Medica,* which comprises the history of Indian plants of medical and nutritive value, minerals and organic substances like musk, ambergris etc. The study of the history of *Indian Materia Medica* being closely connected with the history of Indian Pharmacology, is a subject of profound interest to the students of Indian Botany and Medicine alike, not to say its value for the reconstruction of the history of Indian Culture in general. In fact my studies in this direction have put me in touch with many eminent medical men, botanists, and historians of culture in India and outside. The study of the Indian *Gandhaśāstra* is only one line on the spectrum of Indian Civilization, so rich with variegated streaks of culture of the different periods of Indian history from the Vedic times to the advent of the Indian Independence.

To understand the full significance of the Indian *Gandhaśāstra* it is necessary for us to study the history of cosmetics and perfumery in other civilizations like those of Egypt, Babylonia, Greece and Rome. I shall feel thankful if the readers of this article acquaint me with the literary sources, especially Greek and Roman, which deal systematically with the manufacture of cosmetics and perfumery. In particular, I am eager to know if special treatises on *Gandhaśāstra* were written during Greco-Roman times. If such treatises have come down to us we shall be in a position to compare them with the Indian treatises on *Gandhaśāstra* viz. (1) the *Gandhasāra* and (2) the *Gandhavāda* discovered by me some years ago. Cosmetics and perfumes are as old as humanity but with the development of civilization the art of manufacturing them appears to have been developed to cater to the needs of the accomplished ladies and gentlemen of the different periods of human civilization. The manufacture of the different varities of the cosmetics and perfumes was dependent on the

refined taste of their consumers. It is, therefore, possible to suppose that the degree of excellence and refinement of cosmetics and perfumes, current at any period of civilization, was an index of the cultural development of that period.

Indian medical literature that has survived to this day contains a few *Nighaṇṭus* or glossaries which record classified lists of medical and botanical terms. In particular they are a record of the names and properties of the important items of *Indian Materia Medica* current at different periods of Indian medical history. In these glossaries or *Nighaṇṭus*, we find a record of many aromatic ingredients used in the manufacture of cosmetics and perfumes. So far as I know a glossary entirely devoted to the aromatic ingredients (*gandha-dravyas*) has not come to light up to now. Such a glossary is, however, found as chapter III of the treatise on *Gandhaśāstra* discovered by me viz. the *Gandhasāra* by Gaṅgādhara. In this chapter the author tells us how to examine and use the several aromatic ingredients in the manufacture of cosmetics and perfumes. He classifies the *aromatic ingredients* in different *vargas* or classes as follows :—

(1) *leaves* — Holy Basil leaves etc.
(2) *flowers* — Saffron, *campaka* flowers, clove etc.
(3) *fruits* — Pepper, nutmeg, cardamum etc.
(4) *barks* — Bark of camphor tree, bark of clove tree etc.
(5) *woods* — Sandal wood, fir wood etc.
(6) *roots* — Nut-grass (*cyperus rotandus*) *pavonia odorata* (*Vala*) etc.
(7) *exudations from plants* — Camphor etc.
(8) *organic products* — Musk, honey, lac, ghee etc.

The eight-fold classification of aromatic ingredients given by Gaṅgādhara will be found sufficiently intelligent, if not scientific according to modern standards. At any rate it justifies the statement of Gaṅgādhara that he is a *Kovida* or expert in the science of cosmetics and perfumery, which he describes as "difficult to comprehend, vast in its scope, and consisting of materials of a scattered nature." He further states that he has compiled his treatise on the basis of earlier treatises or texts, which unfortunately he does not name.

One of the objects of the *Gandhaśastra* according to Gaṅgādhara is the use of perfumes in the worship of gods. Consistent with this religious back-ground of the *gandhaśastra* there is a presiding deity for this science of cosmetics and perfumes. At the commencement of his treatise Gaṅgādhara bows to four deities viz. (1) *Śiva* (2) *Gaṇapati* (3) *Sarasvatī* (the goddess of learning and arts) and (4) *Gandharva*

Yakṣa or *Gandha Yakṣa*, a demi-god attending upon God *Śiva*. I have not come across any reference to the demi-god of the name "*Gandha Yakṣa*" the presiding deity of *Gandhaśāstra* specifically mentioned by Gaṅgādhara in his treatise. The science of perfumes is, however, semi-divine as the perfumes have the power to put us in a good frame of mind and lift us at least temporarily from the worries of this world. All lovers of perfumes will, therefore, welcome whole-heartedly Gaṅgādhara's belief in a "*Gandha Yakṣa*" as the presiding deity for the science of cosmetics and perfumes.

Gaṅgādhara's treatise on cosmetics and perfumes contains three chapters on the following topics :—

Chapter I — This chapter explains technical processes and terminology of *Gandhaśāstra*.

Chapter II — This chapter gives in detail the recipes for the manufacture of different perfumed products such as perfumed waters, oils, sticks, powders, incense etc.

Chapter III — This chapter gives a classified glossary of aromatic ingredients to be used in the manufacture of cosmetics and perfumes.

I have already dealt with the importance of *Chapter III*. The detailed recipes given in *Chapter II* are meant for the manufacture of perfumed products, many of which are used in India to-day. They are too many to be specified in this article. The Sanskrit technical terminology of the *Gandhaśāstra* given in *Chapter I* will not be of much interest to the laymen. I must, however, mention here some of the processes of the manufacture of cosmetics and perfumes mentioned by Gaṅgādhara. The six processes mentioned by Gaṅgādhara are as follows :—

(1) *Bhāvana* — Infusing or saturating powders with fluid.
(2) *Pācana* — Ripening or decoction of materials after they have undergone the process of infusion (No. I above)
(3) *Bodha* — Reviving the scent of a perfume with the help of aromatic ingredients acting as reviving agents.
(4) *Vedha* — This process is a further development of No. 3 above. As the verses describing the process are textually defective I am unable to understand it properly.
(4) *Dhūpana* — Fumigating with aromatic vapours of incense etc.
(6) *Vāsana* — Scenting with the perfumes of flowers etc.

It would appear from what I have said so far about the three chapters of Gaṅgādhara's treatise on *Gandhaśāstra* that this treatise is an attempt

to systematise in a compact form the theory and practice of *Gandhaśastra* developed in India through centuries of Indian political and social history.

As Gaṅgādhara's treatise on *Gandhaśastra* is meant mainly for the manufacturer of cosmetics and perfumery we cannot find in it observations on any subtle topics connected with *Gandhaśastra* such as the following :—

(1) Origin of odour (*Gandha*).
(2) Nature of *Gandha*.
(3) *Gandha* in relation to sex and society.
(4) Classification of odours (*Gandhas*).

It is possible to find scattered observations on these topics in Sanskrit literary sources. In fact I have kept these topics in mind for future study and investigation. The rich odour of the references to *Gandhaśastra* in literary sources attracts me, but I am unable to enjoy it like the bee in the thicket of golden buds of *Ketakī* blinded by dust and helpless in his efforts to live in it or move about owing to the loss of his wings cut off by the prickles on the buds.

2. History of Ambergris in India*

Between about A.D. 700 and 1900

The history of Indian cosmetics and perfumery has not yet been critically reconstructed though materials for such a history are found in abundance in several Sanskrit and Prakrit texts. I have discovered two treatises on *Gandhaśāstra* (Science of cosmetics and perfumery) and have published some papers[1] on these treatises as also others bearing on the history of Indian cosmetics and perfumery. Recently a learned Jain scholar, Muni Puṇyavijayaji of Ahmedabad, requested me to answer the following query :—

"Malayagiri, a Jain commentator of the 12th cent. A. D. mentions a perfume or aromatic ingredient of the name *ambara* along with *aguru* (aloe-wood or agallochum), *karpūra* (camphor) etc. burnt as incense. References to *ambara* as a perfume are rarely found in literature. What is, therefore, the nature and properties of *ambara* mentioned by Malayagiri in the 12th century A. D.?"

It is true that references to *ambara* in the sense of an aromatic ingredient are very rare in Sanskrit or Prakrit literature. The Sanskrit lexicons listed on the following page record the term *ambara* in the sense of a perfume or aromatic ingredient.

The Sanskrit lexicon of Amara (between A. D. 500 and 800) records the term *ambara* in the sense of sky, etc. but not as a perfume. The Sanskrit word *ambara* is phonetically similar to the Arabic word *anbar* for *ambergris*. It is possible to suppose that the Arabs or Mussulmans introduced *ambergris* into India sometime before A. D. 1000. This rich perfume became popular in India in a short time, and Sanskrit lexicographers instead of recording *anbar* as an Arabic word confused it with the already existing Sanskrit term *ambara*, which meant *sky* or *garment*. Consequently these lexicographers added an additional meaning, viz. *perfume* to the original Sanskrit word *ambara* so that all the lexicons composed after the introduction of *ambergris* into India took care to explain *ambara* as a perfume or aromatic ingredient as will be seen from the table given below. The last of the lexicons in this table, viz. the

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**Chymia*, Vol. II, 51- .

1. *Journal of the University of Bombay*, Sept. 1945, pp. 44-45, and *New Indian Antiquary*, Vol. VII (1945), pp 185-193.

Rājavyavahāra-Kośa (A. D. 1676) records *ambara* as an Arabic word and not as a Sanskrit word, as this lexicon is partly a record of Persian and Arabic terms current in the Deccan during the reign of the Maratha King Śivājī the Great, by whose order it was composed for court use. There is no word for *ambergris* in Sanskrit. Prof. Dalgado[2] observes that "Perhaps the word (*ambar*) was imported directly from Arabic." He also points out that in many vernaculars of India the term *ambar* for *ambergris*

Chronology	Lexicon	Reference
		Ambara is called
Between A.D. 700 & 1000	*Śāśvata-Kośa* *Trikāṇḍa-śeṣa*	*Sugandhi-dravya* *gandha-dravya*
A.D. 1111	*Viśva-Kośa*	*sugandhaka*
A.D. 1100-1200	*Nānārthārṇava-Saṅkṣepa*	*Sugandhidravya*
c. A.D. 1250	*Medinī-Kośa*	*Sugandhi*
Between A.D. 1175 & 1434	*Anekārthatilaka*	*Surabhi dravya*
Between A.D. 1300 & 1600	*Viśvalocana-Kośa*	*Sugandhaka*
c. A.D. 1685	*Śabdaratna-samanvaya-Kośa*	*Sugandhaka*
c. A.D. 1676	*Rājavyavahāra-Kośa*	*Mātsyika* (product from a fish) and included among perfumes like musk, etc.

is still current. The Latins call it *ambarum* Some other nations and languages give it the same name or one with very slight variation.

The following references to *ambergris* in non-Sanskrit sources are of interest :—

(1) John Marshall[3] in his account of India (A.D. 1668-72) refers to *ambergris* at Mauritius and at Johanna. He says "What this is hath not yet beene perfectly knowne."

(2) J. Fryer[4] (A.D. 1672-1681) in his account of East India and Persia refers to *ambergreece* as a precious article of trade within the charter of the East India Company and states that grey *ambergris* is the best and that it yields a fragrant odor and feels in substance like beeswax.

2. *Portuguese Vocables in Asiatic Languages*, English Trans. by A. X. Soares, G. O. Series, Baroda, 1936, p. 15.

3. *John Marshall in India*, Oxford University Press, London, 1927, pp. 48 and 415.

4. *Fryer's Travels*, Hakluyt Society, London, 1912, Vol. II, p. 142.

(3) *Ain-i-Akbari*[5] (A.D. 1590) refers to the "preparations of *ambergris*" with which the presence chamber of Emperor Akbar was fumigated constantly. This work mentions three theories about the origin of *ambergris* :—

"Some say that it is produced in the bottom of the sea; others make it to be the dung of the sea-cow, which is called *Sara*, whilst others maintain that it is the foam of the sea."

The cost of ambergris mentioned in this work is "one *Mohar* to three, per Tolā."

(4) Tavernier (A. D. 1676) in his *Travels in India*[6] records some valuable remarks on both *amber*[7] and *ambergris*. About *ambergris*[8] he notes the following points :

(*i*) We do not know how it is formed or where it is found.

(*ii*) It is found in the seas of the east and some times on the English and other European coasts.

(*iii*) The largest quantity of it is found on the coast of Melinda, and especially at the mouth of the river Rio di Sena.

(*iv*) The Governor of Mozambique brings with him to Goa every three years *ambergris* worth 300,000 *pardos* (=£30,000).

(*v*) Tavernier devotes three pages to a story of a Frenchman (Marin Renaud of Orleans) on board a Portuguese vessel sailing from Goa to Manillas in A.D. 1627. This Frenchman discovered a piece of *ambergris* on the shore near the mouth of a river while bathing there. This piece weighed 33 *livres*. The sailors and soldiers quarrelled for it. The Captain of the ship presented it to the king of Portugal through the Viceroy and thus settled the dispute tactfully.

(5) Bernier in his *Travels*[9] (A.D. 1656-68) mentions the imports of India. In this connection he states that India imports "*ambergris* from the *Maldives* and *Mozambic*."

(6) Ibn Battuta in his *Travels*[10] (A.D. 1325-54) describes his voyage to Ma'bar (Coromandel) and his escape from a shipwreck. In this connection he states :—

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5. English Translation by F. Gladwin, Calcutta, 1897, Vol I, pp. 65, 68, 69.

6. Ed. by V. Ball, London, Vol. II, pp. 138-142.

7. *Ibid*; pp. 136-138 (remarks on amber)—The Dutch Company carried on trade in amber and the Chinese bought it from them at Batavia.

8. *Ibid*; Vol. I, p. 190 (*Ambergris* at Mozambique)

9. Ed. Constable, London, 1891, p. 204 (letter to Colbert).

10. Ed. A.R. Gibb, London, 1939, p. 261 (chap. X).

"The sailors tied ropes to the raft and swam with their aid. I sent along with them all things that I valued and the jewels and *ambergris* and they reached the shore in safety because the wind was in their favour."

(7) In a Portuguese poem[11] *"The Lusiades"* (Lisbon, 1572) translated into English by W.J. Mickle, London, 1776, we find a reference to *fragrant amber (ambergris)* as follows :—

"On Afric's strand...

From calls unknown, here bounteous ocean pours

The *Fragrant amber* on to sandy shores"

(8) Marco Polo in his *Travels*[12] (A.D. 1298) makes the following references to *ambergris* :—

Page 424-(chap. XXXIV)—Tradersresorting to the *"Islands of Males and Females"* with the principal object "to purchase *ambergris* of which a quantity is collected there."

Page 425-6—Description of the island of *Socotra* in which the following points are noteworthy :—

(1) *Ambergris* is found on the coasts It is *"voided from the entrails of whales."*

(2) It is an article of merchandise in great demand.

(3) The inhabitants make it a business to kill the whales with harpoons and drag them ashore and *"extract* the *ambergris"* from their bellies and from their heads they procure "casks of (spermaceti) oil."

(4) Ships bound for Aden halt at Socotra (near Cape Guardafui) and purchase *ambergris* and cotton goods.

Page 428—Much *ambergris* from the whales is thrown by the tide on the coasts of *Madagascar* and it is collected for sale.

Page 433—Trading ships visit the island of *Zanzibar* and barter their goods for *ambergris* gathered on the coasts where it is found in quantities as the sea abounds in whales.

The references to *ambara, ambar, ambergris* recorded above are sufficient to establish the history of this aromatic ingredient in India and Africa from *c.* A. D. 700 onwards. This history is further corroborated by the following Arabic sources mentioning *anbar* (ambergris) :—

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11. Quoted on p. 103 of *In Quest of Spices* by Sonia E. Howe, London, 1946.
12. *Travels* of *Marco Polo*, ed. by T.W. Wright, London, 1901.

1. The Arab geographer *Yaqubi* (c. A. D. 875) mentions various kinds of *anbar* including *anbar Hindi* which is procured from the coast and then exported to Basra and other places. The *anbar* which comes from *Hind* is called *karkbatus* associated with a community of that name.

2. The second Arab geographer *Abu Zayd* (A. D. 950) gives details of the origin of *anbar* and describes some varieties which do not comprise any variety associated with *Hind*. He further states that *anbar* is thrown up along the coast commencing from the sea of *Hind* but it is not known whence it comes.

3. The Arab geographer *Masūdi* (A. D. 950) gives the qualities of *anbar* and says that it grows in the bottom of the sea of *Harkand* etc. It is white, black, and of dark bay colour.[13]

4. The fourth Arab geographer *Idrisi* (A. D. 1165) states that *anbar* (ambergris) is found on the shores of Yemen flung there by the waves after stormy tempests. He further relates that *Harun-al-Rashid*, the Caliph, had sent some persons to inquire from the shore-dwellers what they knew about *ambergris* as there were many tales then current about its origin. The result of their inquiry was that *ambergris* flows from springs at the bottom of the sea.[14]

It would appear from these remarks of Arab geographers that some sort of *anbar* (ambergris) associated with Hind was known to them. Whether this *ambergris* was gathered on Indian shores or was imported into India by the Arabs is unknown. The only references to the use of *ambara* (ambergris) in Indian perfumery are found in a Sanskrit treatise viz. *Gandhavāda*[15] with Marathi commentary, represented by a single manuscript at the Bhandarkar Oriental Research Institute. This treatise was composed between A. D. 1300 and 1600.

In this attempt to reconstruct the history[16] of *ambergris* in India

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13. S. M. H. Nainar, *Arab Geographers' Knowledge of Southern India, up to 14th century A. D.*, Madras, 1942, pp. 187-190.

14. S. E. Howe, *In Quest of Spices*, London, 1946, p. 39.

15. *Vide* folio 27b of the manuscript of the *Gandhavada*—Recipe for a perfumed powder called *manmathodayapiṣṭaka*

16. No history of *ambergris* in India or outside has been recorded by George Watt in his *Dictionary of Economic Products of India*, Vol. 1, Calcutta, 1889, p. 217, where his articleon *ambergris* appears.

from A. D. 700 onwards, it has been difficult to determine at what time exactly it came to be used by Indians. Very probably the Arabs were responsible for its introduction into India in the 8th century A.D.[17]

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17. In connection with the present inquiry I am curious to learn anything which the readers of *Chymia* may know concerning the history of *ambergris* in the ancient civilizations of Cyprus, Egypt, Mesopotamia, Greece, Rome, China, etc. In this connection I have made inquiries through my friend Dr. Gerhard Lindblom, Director of the Ethnographic Museum, Stockholm, but so far he has found no definite information which could be included in this paper.

3. Studies in the History of Indian Cosmetics and Perfumery :

Notes on the History of the Rose, Rose-water and Attar of Roses — Between B.C. 500 and A.D. 1850*

The Marathi Dictionary *Śabdakośa* (by DATE and KARVE, Poona, Vol. I, 1932, p. 50) records the word *attar* (अत्तर) and its derivatives अत्तर-गुलाब, अत्तरदाणी-नी and quotes a work called नवनाथ भक्तिसार (1896) 20. 101. as follows :—

"त्यांत फुलें अ० । लोकांमाजीं मिरवतसे"

No other usage of the word अत्तर is recorded in this Dictionary. have, however, to point out that Raghunātha Paṇḍita in his *Rājavyavahārakośa*[1] (A. D. 1676) भोग्यवर्गे explains the word अत्तर as पुष्पसार (essence of flowers) in the following lines :—

"अत्तरः पुष्पसारः स्याद्वस्तुसारोऽर्कनायकः ॥१२॥
मकरन्दो गुलाबः स्यात् केसरं जाफरा भवेत् ॥"

The word गुलाब means "rose-water" and not rose-flower. The word अत्तर in the above lines most probably means the celebrated *attar of roses*, about which I have to note here the following information :—

The *Shorter Oxford English Dictionary* (p. 1392) contains the following entry about *attar* or *otto* :—

"OTTO—also formerly *otter*[2] *ottar* 1639. An altered form of *Attar*, in *attar* or *otto of roses*, the fragrant essence of roses.—Hence *joc.* in *otto of whisky*. THACKERAY."

The *Hobson-Jobson* (YULE and BURNELL, London, 1903) p. 647, records the following note on *Otto, Otter* :—

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*New Indian Antiquary, Vol. VIII, pp. 107-119.

1. Vide p. 8 of राजव्यवहारकोश, Shivaji Press, Poona. 1880.

2. Vide p. 12 of Intro. to *John Marshall in India* (Notes and Observations in Bengal —A.D. 1668-1672) ed. by S. A. KHAN, Oxford Uni. Press, London, 1927 p. 12—Richard Edwards a fellow-voyager to India with MARSHALL wrote on *13th July 1670* from Kāsimbāzār requesting MARSHALL to invest the produce of some sword blades sold at Patna for him in "Baroch (Broach) stuffs for breeches and the rest (if any remain) in one bottle of the *best floweroyle and some otter* (*attar* of roses) and *chua* (chawwā)."

OTTO, OTTER. s. or usually 'Otto of Roses' or by imperfect purists *Attar of Roses*, an essential oil obtained in India from the petals of the flower, a manufacture of which the chief seat is Ghāzipur on the Ganges. The word is the Arab *itr*, perfume. From this word are derived *attar*, a perfumer or druggist, *attārī adj.* pertaining to a perfumer. And a relic of Saracen rule in the Palermo is the *via Latterini*, the street of the perfumer's shops. We find the same in an old Spanish account of Fez :—

A.D. *1573*—"Issuing thence to the Cayzerie by a gate which faces the north there is a handsome street which is called of the *Atarin*, which is the spicery." —*Marmol, Affrica*, ii. f 88.

[*Itra* of roses is said to have been discovered by the Empress Nūr-Jahān on her marriage with Jahāngīr. A canal in the palace garden was filled with rose-water in honour of the event, and the princess, observing a scum on the surface, caused it to be collected and found it to be of admirable fragrance, whence it was called *itr-i-Jahāngīrī*.]

A.D. *1712*—Kaempfer enumerating the departments of the Royal Household in Persia names "*Pharmacopoeia* ... ... ATTHAARCHONEH, in qua medicamenta et praesertim variae virtutis opiata, pro Majestate et aulicis praeparantur".
—*Am. Exot*, 124.

A.D. *1759*—"To presents given etc.

....

"1 *Otter* box set with diamonds
"*Sicca Rs.* 3000......3222-3-6"
Acts of entertainment to Jugget Set in *Long*, 89.

A.D. *1790*—"Elles onut...surtout pour celle de rose, applée OTTA"
—*Haafner*, ii, 122.

A.D. *1824*—The *attar* is obtained after the rose-water is made, by setting it out during the night and till sunrise in the morning in large open vessels exposed to the air and then skimming off the essential oil which floats at the top."
—*Heber*, ed. 1844, i, 154.

In the book "पेशवाईच्या सावलींत" by N. G. CHAPEKAR (Poona, 1937) we get the following references about गुलाबदाण्या and अतरदान :—

Page 207—A.D. *1783*—"गुलाबदाण्या ६"
—"अतरदान पत्री काचबंधुषा १"

Page 215—A.D. *1794* (21st January)—Banquet to Nana Phadnis—Rs. 5—"गुलाबी अत्तर"

Capt. Edward MOOR in the *Glossary* at the end of his *Narrative* etc. (London, 1794), page 501, records the following note on अत्तर :—

"*Attar*—An exquisite perfume from roses ; in England called *Otter, Otteau*, or *Otto* etc. *Attar* is also procured from sandal-wood but it is then distinguished from the superior essence, which is pre-eminently called *Attar*, only. So very difficult is it to procure the pure *Attar* in India even, that it is rarely seen, and perhaps not one part in five hundred of what is exported is pure and genuine. A particular account is given of the process of making *Attar* by Colonel Pollier in *Asiatic Researches*, Vol. I, p. 332."

On p. *375* MOOR refers to "*rose-water, gul-aab*, which is sprinkled over guests," and "*attar* of roses" presented to each person before "*beeree*" (ताम्बूल). On *page 377* MOOR records how a soldier received the अत्तर : —

"On a public visit paid by Purseram Bhow to Colonel Frederick, at Darwar, the manner in which one of the guests received the *attar* had a curious appearance, and was for a soldier, a happy idea. He was a very well-looking man, and coming into the Darbar tent sometime after the Bhow etc. were seated we had an opportunity of seeing, by the manner in which he was received, that he was a man of importance. Our attention was attracted by his habiliments, as he had no clothing, save a pair of silk drawers, that reached from his waist half way down his thigh, and a turban on his head. A sword and target completed his equipment, and as his hands were filled with them, we were curious to see how he could receive the *attar*. *He received it on his target, which he brought to his nose with great gravity*. This person was, we think *Bunna Bapoo Mendla*,[3] whom we have seen in a very important command on the confines of Bednore".

The foregoing evidence shows how the *attar of roses* had become popular in England and India between A.D. 1600 and 1800.

In the *Ain-i-Akbari* (A.D. 1590) Vol. I (Eng. Trans. by Gladwin, Vol. I, Calcutta, 1897) p. 185 we read that Akbar weighed himself against the following articles—"Gold, quick-silver, raw silk, *artificial perfumes, musk*, Roohtootea etc."

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3. In the *Madhyayugīna Caritrakośa* (by Chitrav, Poona, 1937, p. 538) we find some account of बच्याजी रघुनाथ मेहेंदळे, who was the younger brother of *Bahiro Raghunātha Mehendale*, the Peshwas's Vakil with the English Resident Sir Charles Malet (A D. 1791). Bachyaji accompanied Lord Cornwallis in his campaign against Tipoo Sultan in A.D. 1791.

Evidently these perfumes must have been produced in plenty for royal use of the above type. In fact pages 65-75 of the *Ain-i-Akbari* (Gladwin's Trans. Vol. I) are devoted to the "*Regulations of the Perfume Office* of Akbar." For the history of Indian cosmetics and perfumery the account of the royal perfumery given in the *Ain-i-Akbari* is of exceptional value. I note below some points from this elaborate record :—

Page 65—"His Majesty is exceedingly fond of perfumes, and the presence chamber is continually scented with *flowers* and fumigated with preparations of ambergris, lignum aloes etc. which are burnt in *gold and silver censers.*

His majesty constantly perfumes his body and the hair of his head with *odoriferous ointments*"

Pages 66-68—Odoriferous compositions described. I note some words from this description :—

(1) *Sentowk* (a great exhilarator)	—Civet, Chuwah, Jasmin oil, *2 bottles* of rose-water.
(2) *Argehjeh* (for summer use)	—Sandal wood, Lignum aloes, Myd, Chuwah, roots of violets and Kehlet, Camphor, 11 *bottles of rose-water.*
(3) *Gul Kameh*	—Ambergris, Laudan, Musk, Lignum aloes, Akysir, *juice of roses*, juice of lemon blossoms, juice of sweet *basil.*
(4) *Ruh-Afza* (for burning in censers)	—Lignum aloes, sandal-wood, Lauden, Akysir, Frankincense, Derhoop (from Kashmir), violet roots Ushneh, *4 bottles of Rose-water*—to be made into cakes.
(5) *Owpteneh* (wash for hands)	—Laudan, Lignum aloes, Lemon blossoms, Lemon peel, sandal-wood, Spikenard, Ushneh, Musk, Pacheh leaves, Apples, Sad, Violets, Derhoop, Akenky, Civet, Frankincense, *160 bottles of Rose-water*, 5 bottles of the juice of lemon blossoms.
(6) *Abyr Mayeh*	—Lignum aloes, sandal-wood, violet roots, spikenard, Duwalek *Musk of Tartary*, Laudan, Orange blossoms, 10 *bottles of Rose-water.*

(7) *Keshneh* —Lignum aloes, Laudan, Frankincense, Sandalwood, Akysir, Derhoop, Violet roots, Musk, Ushneh, *Sugarcandy*, 2 *bottles of Rose-water*—to be made into cakes—gives very fragrant smell, when burnt.

(8) *Bekhur* —Lignum aloes, Sandalwood, Frankincense, Musk, Akysir, *Sugarcandy*, 1 *bottle of Rose-water*.

(9) *Fetyleh* —Lignum aloes, Sandalwood, Akysir, Laudan, Violets, Frankincense, *Sugarcandy*, 2 *bottles of Rose-water*.—To be made into *Topers*.

(10) *Barjat* —Lignum aloes, Laudan, Musk, Sandalwood, Frankincense, Camphor.

(11) *Abyr Akysir* —Sandalwood, Akysir, Musk,—to be ground fit for use.

(12) *Chesul* —Kettowl, Musk, Chuwah, Camphor, Myd, 2 *bottles of Rose-water*.

The aromatic ingredients recorded in the above notes on the different items of perfumery amply show their variety. *Rose-water* was used in plenty but there is no mention of the *attar* of roses in these notes.

Page 68—Abul Fazl then deals with "*Natural Perfumes*." The items in this category are :—

(1) *Ambergris*, (2) *Laudan* "from the tree found in the island of Cyprus and Chois," (3) *Camphor* "from a large tree found in the maritime mountains of Hindustan and China," collected from trunk and branches, (4) *Civet* from Achin "from an animal resembling a cat (5) *Kowrah* "from an animal resembling the *Civet*" found in Achin, (6) *Myd*, something of the above kind but of inferior quality, (7) *Lignum Aloes*, root of a tree. Several kinds of it are :— Mendely, Jebely, Semendury, Kemary, Kakey, Berry, Cathaiy, Chiny (also called Kemoory), Jelaly, Mytaky, Lemaky,— of these *Mendely is the best. Semendury* is blue and burns for a long time on the fire, (8) *Chuwah* is distilled Lignum aloes.

Page 69—*Method*[4] *of making Chuwah* :—"Small pieces of Lignum aloes ... put into a *narrow-necked vessel* ... luted with *philosopher's clay*... composed of *clay, cotton* and rice bran. A small space is left at the neck

4. Compare अधःपातन यन्त्र described in the रसप्रकाशसुधाकर of

of the vessel which is placed *inverted in another vessel*, perforated at the bottom, and supported by a three-legged stand, under which is placed a *dish* full of water, so that the mouth of the first mentioned vessel may touch its surface. Then there is made round the inverted vessel a gentle *fire of cowdung*, which *melts the aloes, till it distills* into the water. This is collected and repeatedly washed with water and *rose-water* to take off all smell of smoke."

(9) *Sandal*, a native of China, "brought into Hindustan in this reign and thrives very well." (10) Sandalwood, three kinds (*white, red* and *yellow*—best is called *Mekasiry*, which is *yellow* and *oily*. (11) *Storax* a tree gum, native of Syria, liquid and dry kinds, (12) *Kelumbek*, a tree from Zeerbad, ground fine and mixed with other perfumes,—*rosaries* are also made of it, (13) *Mulageer*, resembling the above tree, (14) *Frankincense*, a tree gum from Java, (15) *Scented Nails* from Indus and Basra Bahrain, resemble shells collected from the nest of an animal.

Pages 69-70—Table perfumes with prices—Ingredients in this list are :— Ambergris (1 to 3 Mohars per Tolāh), Civet, Musk, Lignum aloes, Chuwah, Kowrah, Camphor, Myd, Persian Saffron, Kahghy Saffron, Cashmeery Saffron, Sandal, Musk pods, Kelumbek, Storax, Frankincense, China, Camphor, Essence of Fitneh, Essence of Baidmusk, *Rose-water* (½ to 1 Rupee per bottle), Essence of Orange flowers (1 to 5 Rs. per bottle), Essence of Jasmin (4 to 8 Rs. per bottle), Violet roots, scented nails, Bah leaves from Guzerath, Sugendeh Kookelah, Frankincense, Alekkhendy, Duwalek, Kanehleh, Saad, Akungy, Zedoary.

Pages 70-71 — Notes on *Flowers* :—These notes are very useful both historically and botanically and hence deserve to be reproduced here ; but for want of space I have to mention only some points from them :—

(1) *Sugendehkukla*—A very common shrub in Hindustan.
(2) *Sewty*—Resembles *red rose* but is smaller.
(3) *Jasmin*—Two kinds, one is called *Roy Chembely*.
(4) *Royl Beyl* - Resembles *Jasmin*, several kinds.

यशोधर (ed. by Rajvaidya J. K. Shastri, Gondal, 1940, p. 7) Chapter 1 :—

"अधःपातनम् —

पूर्वोक्ता स्थालिका सम्यक् विपरीता तु पंकिवे ।
गर्ते तु स्थापिता भूमौ ज्वालयेन्मूर्ध्नि पावकम् ॥
याम-त्रितय-पर्यन्तम् अधःपतति पारदः ।
अधःपतनयन्त्रं हि कीर्तितं रसवेदिभिः ॥ "

(5) *Mowngra*—Resembles Roy Beyl, but larger.

(6) *Chempeh*—Conical in form, of a finger's length,—handsome tree flowering in seven years.

(7) *Keytkey*—Resembles a cone of a pine tree—delicate fragrant smell—flowers in six or seven years.

(8) *Chelteh*—Like a tulip but larger—has violet smell—withered flowers are boiled and eaten—tree of the size of the pomegranate tree—leaves like those of lemon tree, flowers in the 7th year.

(9) *Kewrah*—Like *Keytkey*, twice as big—tree flowers in 4 years.

(10) *Tusbeh Gulal*—fragrant smell, dagger-shaped petals.—2 ells high shrub, flowering in the 4th year—beads of these flowers keep fresh a week.

(11) *Phulsery*—less than Jasmin, indented petals, resembles walnut tree, flowers in 10th year.

(12) *Sengarhar*—clove-shaped, flowers in 5th year.

(13) *Koozeh*—resembles *white* rose, Abyrmayeh made of this flower, used for distilling a kind of water.

(14) *Padel*—gives agreeable flavour to water ; flowers in the first year.

(15) *Jewhy*—flowers in the 3rd year.

(16) *Newary*—resembles Roy Beyal, flowers in the 1st year.

(17) *Kepurbeyl*—with 5 petals, resembles saffron flower—*lately brought from Europe.*

(18) *Saffron*—Resembles Kepurbeyl ; six petals and six threads. The first three petals are very beautiful, encompassed by three similar petals, between these six petals are three *yellow threads*, which are *saffron*.

(19) *Sun-flower*—round, broad, large ; numerous petals, always turns towards the sun ; height of shrub, three ells.

(20) *Kenwel*—2 kinds,—*one yellow* blowing in the morning and following the sun in its course, shutting up in the evening, with 6 petals, resembles *Anemone*.—*other* kind, *white*, 4 petals, blows in the moonshine and turns towards it in the same manner as the Sun-flower follows the Sun.

(21) *Jafery*—round beautiful, larger than *Sudberg*.

(22) *Gorhel*—like *tulip*, numerous petals, flowers in 2nd year.

(23) *Retenmungeny*—4 petals smaller than *Jasmin*, tree and leaves resemble Roy Bel, flowers in 2nd year.

(24) *Keysew*—five petals, resembling the nails of a lion.

(25) *Kenafyr*—long time in bloom, beautiful but unlucky, one, wearing it on his head, gets into quarrels, flowers in one year.

(26) *Kuddem*—Round like a ball, tree and leaves resemble walnut tree.

(27) *Nageshir*—Shaped like the *red rose*, white with yellow in the middle, fine petals and threads, flowers in 7 years.

(28) *Soorpun*—Resembles sesame flower, yellow in the middle.

(29) *Sirrybhundy*—Somewhat like Jasmin, flowers in 2 years.

(30) *Henna*—4 petals, every shrub bears a different coloured flower.

(31) *Dupahrya*—Small flower, dark red colour, blows always at noon.

(32) *Bhuyan Chumpa*—Resembles Neelofer, five petals, grows in inundated ground, nothing but flower appears above the surface.

(33) *Soodorson*—Resembles Roy Bel, yellow threads within petals,—the plant is like the lily.

(34) *Spikenard*—five petals, each 10 fingers long, and 3 fingers broad.

(35) *Rotonmala*—Used for dying cloth; a decoction of it mixed with vitriol and Masfer flowers produces *red colour*.

(36) *Malty*—Like Jasmin, but smaller, flowers in 2nd year.

(37) *Soon*—Like yellow Jasmin, somewhat larger, five petals, tree resembles Jasmin, flowers in 2nd year.

(38) *Keroyl*—beautiful, 3 little petals, made into broth and also pickled.

(39) *Jait*—Grows on a large tree, leaf resembles the tamarind leaf.

(40) *Chempelah*—like a Nosegay—flowers in 2nd year, its bark makes red decoction, grows chiefly in mountainous countries, wood burns like candle.

(41) *Lahy*—shrub, 1½ ell high, branches, before the flowers appear, are eaten with bread.

(42) *Kerundeh*—Resembles Jewhy flower.

(43) *Dhonwontor*—beautiful, resembles Neeloser.

(44) *Seriss*—like threads of silk—sends fragrance to great distance—called the *King of trees*, very large tree, used in building, its heart is black and resists the axe.

(45) *Kunglay*—beautiful, in 5 petals, each 4 fingers long—only one flower on each stock.

(46) *Hemp*—in clusters like Nose—gay, leaves like those of Chinar tree—Rope is made of its bark—one species has a flower like cotton shrub and it is called *Sun-paut*; this makes a very soft rope.

Abul Fazl concludes his description of flowers and flowering plants as follows :—

"It would be impossible for one, ignorant as I am, to describe every flower of this country. A few have been mentioned by way of specimen. Here are also found *abundance of flowers transplanted*[5] *from Persia and Tartary* ; such as *roses, violets, Jasmin* etc. The plants, flowers, roots etc. of this country, that are *used for food*, or applied to *medicinal purposes* are innumerable. It is said by *Indian authors* that *if you take a leaf of every tree they will amount to six maunds.*"

In concluding his section of the *Regulations of the Perfume Office Abul Fazl* gives the following *Table of flowers* :—

	Name	*Colour*	*Season*
(1)	Sewty	... White	... All the year.
(2)	Jasmin	... White and yellow	... The Rains and Winter
(3)	Roy-beyl	... white	Summer
(4)	Mowngra	... Do	Do
(5)	Chempeh	... Pale yellow	... All the year
(6)	Keytky	... Do	... Summer
(7)	Chelteh	... White	... Winter
(8)	Koozeh	... White and Yellow	... Autumn
(9)	Gulal	... White	... Spring
(10)	Tesbeh Gulal	... Do	... Winter
(11)	Phulsery	... Do	... The Rains
(12)	Sengahar	... Do	... Summer
(13)	Padil	... Do	... Spring
(14)	Jewhy	... Yellow and White	... The Rain
(15)	Newary	... White	... Spring
(16)	Narcisus	... Do	... Do
(17)	Violet	... Gives name to a colour	... Summer
(18)	Kerneh	... White	... Spring
(19)	Kepurbeyl	... .	... .
(20)	Saffron	... Violet colour	... Autumn

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5. Compare Edict II of *Emperor Asoka* :—

"Wherever *plants* useful either for men or animals were wanting they have been *imported and planted*. Wherever *roots* and *fruits* were wanting they have been *imported and planted*." (Vide p. 47 of *Surgical Instruments of the Hindus* by G. Mukhopadhyaya, Vol. I, Calcutta 1913).

	Name		Colour		Season
(21)	Sun-flower	...	Yellow	...	......
(22)	Kenwel	...	A light red half blue and white	...	The Rains
(23)	Jatry	...	Dead Yellow	...	Spring
(24)	Gorhel	...	Red, Yellow, Orange and White	...	The Rain
(25)	Retemungeny	...	Fiery Red	...	All the year
(26)	Kaysew	...	......	...	Summer
(27)	Kenyar	...	Red and White	...	......
(28)	Kuddem	...	Yellow and White	...	Spring
(29)	Negehsir	...	Within White and Yellow	...	Do
(30)	Sorpun	...	Do	...	The Rains
(31)	Serry khendy	...	White, Red and Yellow	...	Spring
(32)	Henna	...	......	...	......
(33)	Dupahrya	...	Bright, Red and White	...	All the year
(34)	Bhuyan Chumpa	...	Apricot colour	...	......
(35)	Sudersun	...	Yellow resembling Water Lily	...	The Rains
(36)	Spikenard	...	Dirty Red	...	Spring
(37)	Rutenmala	...	Yellow	...	Do
(38)	Soon	...	Do	...	Do
(39)	Malfy	...	......	...	......
(40)	Clove Jelly flower	...	Golden Colour	...	Spring
(41)	Keroyl	...	......	...	Do
(42)	Jait	...	Yellow with Red and Black	...	The Rains
(43)	Chumpelah	...	White	...	Spring
(44)	Lahy	...	Yellow	...	Winter
(45)	Kerundeh	...	White	...	The Rains
(46)	Dhonontor	...	Like the Water Lily	...	Do
(47)	Siress	...	Yellow inclined to Green	...	Spring
(48)	Kunglay	...	Red and Yellow	...	......
(49)	Hemp	...	Yellow	...	The Rains

My object in recording the above account of cosmetics, perfumes and flowering trees and plants from the *Ain-i-Akbari* (A.D. 1590) is two-fold.

In the first instance this account is a fairly exhaustive record of the names of aromatic ingredients current at the Mogol Court in the 16th century. Secondly, this record is very useful for comparison of these ingredients with those recorded in the two special treatises on *Gandha-śāstra* discovered by me for the first time viz. the *Gandhasāra*[6] of Gaṅgādhara (between A. D. 1000 and 1600) and the *Gandhavāda*[7] with Marathi commentary (between A.D. 1350 and 1550). These three records which amply vouch for the wide-spread manufacture and use of cosmetics and perfumes in India say between A.D. 1200 and 1600provide a good basis for a further study of this forgotten subject, which has its due place in any history of Indian culture, not to say the culture of humanity, for cosmetics are as old as man.

After the foregoing notes were drafted my friend Dr. Sadgopal, Chief Chemist of the Hindustan Aromatics Company at Naini (Allahabad) sent me some books on *Rose* and desired me to incorporate in this paper a few notes from these books bearing on the history of the *Rose.* I record below such notes for the benefit of the students of the history of Indian plants:—

(1) George M. Taylor in his book on "*Roses, Their Culture and Management*" (London, 1945) deals with the "Evolution of our Modern Roses" (Chap. 1). The following points may be noted from this chapter :—

(i) *The Cabbage or Provence Rose* (Rose Centifolia L)—This was long reputed to be the Rose of Pliny and Theophrastus. Scientists have now proved that "this rose was evolved very slowly over the years *from the end of the sixteenth century to the beginning of the eighteenth*, and it then reached the form in which we know and appreciate it today."

(ii) The history of our Garden Roses falls into two periods :—

(a) *2000 B.C. to A.D. 1800*—The most important of our ancient Garden Roses originated from the wild species of the genus *Rosa.* These are the *Red Rose*, the *Phoenician Rose*, the *Musk Rose* and the common *Dog Rose.*

(b) A.D. *1800 to 1944*—At the beginning of the 19th century there was a revolution in the Garden Roses in England, where the *China Rose* was introduced towards the end of the 18th century.

(iii) *Ancient Garden Roses*— Ancient Roses flowered only once a year. Modern Roses are *potentially perpetual* if the climate is

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6. Vide p.p. 44-52 of *Journal of Bombay University*, Vol. XIV, Part II, Sept. 1945.
7. Vide pp. 185-193 of *New Indian Antiquary*, Vol. VII (Feb-Mar. 1945).

favourable. This characteristic is due to the *breeding with the China Rose*. The foundation species of most of our Garden *Roses* is the *Red Rose of Lancaster*. This Rose in its wild state *extends from France to Persia*. Its history is lost in ages. One French rosarian claims that it was the *Rose of the Persian Magi of the 12th century*.

(iv) *Descendants of Wild Roses* from 4 wild species mentioned above (a).

(v) *The China Roses* — Their character of perpetual flowering— "Science has proved that a pair of these genes, one from the male and one from the female parent, is present in every growing cell of our best modern Roses."

(2) The *National Rose Society* of England was founded on *7th December 1876*. In the *Rose Annual for 1945*, edited by Courtney Page, (pp. 31-33) there isan article on the "History of the Provence Rose" by G. E. J. The following points may be noted from this article :—

(i) In the long history of Roses, the *Provence* or "Hundred-leaved" Rose is the *backbone of continuity*.

(ii) *Rosa gallica* or French Rose is the name of the Rose grown for *attar* in Bulgaria, and Asia Minor (in Morocco and some parts of Asia, the *Musk Rose* is said to be chiefly used) and now long become an indigenous plant over almost the whole surface of Europe.

(iii) *Herodotus* (viii, 138) describes Roses in the Gardens of Midas : "Here Roses grew so sweet that no others can vie with them."

(iv) *Paestum*, a Greek town in the Greek part of Italy, became the Rose centre of the world in Roman times. From Paestum Rose cultivation spread to Southern Italy.

(v) *Pliny, Hist. Nat.* XXI, 19, mentions "*companions*" Rose as "early in blooming."

(vi) When the Roman Empire broke into pieces the sturdiest of Roses had settled itself in *Gallia Provincia*, after which it was called as "*Provence Rose*."

(vii) Lyon (*Lugdunum*) was the next principal centre of the growth and export of Roses through the dark rose-less ages.

(viii) The seat of the Empire next shifted towards Paris and then towards Hertfordshire and Essex.

(ix) The history of the Roses brought from France to England in the Middle Ages is irreparably lost. According to the *National Rose Society's Catalogue* the Provence Rose was introduced into England in A.D. 1596, while *Haydn's Dictionary of Dates* says that it came from Flanders in *1567*.

(3) B. S. Bhattacharji in Chapter XI of his book *"Practical Rose Growing in India"* (Thacker, Calcutta, 1935) deals with the *classification of Roses* (pp. 81 ff). Incidentally he makes the following observations :—

(i) The Rose is no foreign to India as apart from the fact that more than one species grow wild in the Himalayas.

(ii) The *Otto of the Rose* was first invented by Empress Nurjehan in India as far back as the *17 century*.

(iii) From the earlier part of the 18th century roses are being grown in huge quantity in India for the production of *attar, rose-water and rose-petal conserve.*

(iv) Dr. Jules Hoffmann in his German work on roses states in his Introduction that the rose is *"supposed to have been introduced from India and Persia to the gardens of the ancient Greek and Roman empires"* whence it spread to the whole civilized world.

(v) The *China Rose* is known as *Rosa Indica Semperflorence* and *Rosa Bengalensis*. They are known as *Bengal Roses* probably because "they are or were natives of Bengal." Bengal roses are perpetual bloomers.

(vi) Summer blooming and perpetual blooming roses are found wild in many parts of the Himalayas and natives collect their rose-petals on a commercial scale.

(vii) Prior to the introduction of *Rosa Indica* and *Rosa Indica Odorata* Europe had no perpetual blooming rose.

(viii) According to the catalogue of *Petten Bros.* of Luxembourg (established 1867), *Rosa Indica* was introduced from Canton (China) into England by the English traveller KEER. Of the *Rosa Indica Odorata* this catalogue says : "This rose has come to us *from China.* The first variety was introduced *from India into England* in *1789* and in France in the year *1810* by the name of *Rosa Odorata.* The yellow *Tea Rose* was brought over about *1824* and by successive crossings the two roses produced the whole brilliant series which we possess nowadays."

(ix) Owing to the untiring efforts of European growers for hybridization we have enormous varieties and classes of roses.

(4) In Parry's *Cydonaedia of Perfumery* (London, 1925, in 2 vols.) there is an article on the *Perfume of the Rose* (pp. 630-664). The first few pages of this article contain much useful information as will be seen from the following notes :—

(i) No perfume has been so persistently popular as that of the Rose.

(ii) There is no "artificial" *otto* of merit which does not contain some amount of natural *otto*.

(iii) The Rose perfume industry is mainly in the hands of the *Bulgarians*, but its scientific knowledge has been mainly developed by *Frenchmen*.

(iv) Important treatises on the Rose :—

(a) *J. P. Buchoz*—"Monographie de la Rose." Paris, *1804*.

(b) *M. Boitard*—"Manuel complet de l'amateur de Roses," Paris, *1836*.

(c) *R. Blondel*—"Les produits odorants des Rosiers, Paris, *1889*.

(v) *Herodotus* is the earliest writer to differentiate between the odours of various Roses (*Histories*, Bk. iii. ch. 138).

(vi) The Romans regarded *rose leaves* as an antidote to headaches etc. resulting from an excess of wine. This probably accounts for the practice of causing *rose-leaves to rain down on the guests* at the end of a feast and also of the practice of *steeping rose-leaves in wine*.

(vii) The use of *rose-leaf* as a source of *perfume* is very ancient. The use of *perfumed leather* was introduced very early into Rome from either Greece or Babylon.

(viii) The Romans enjoyed the perfume of the Rose in the form of *Rose-water*.

(ix) Originally *Egyptian Roses* were brought to Rome and the principal rose so imported appears to have been *Rosa damascenna*.

(x) Later Roses were cultivated in Rome. *Virgil* (B.C. 70—A.D. 19) the Roman poet ("*Georgics*", IV) mentions the famous *Rose Gardens* at *Poestum*.

(xi) *Pliny* is the first writer to give some *botanical description* of the Rose ("*Natural History*, bk. xxi. ch. iv). He divides Roses into *wild* and *cultivated* flowers and classifies them according to *colour*, *odour* and *habitat*. He knew some of the roses which we know today viz. (1) *Rosa gallica*, (2) *R. centifolia*, (3) *R. damascena*, (4) *R. provincialis*, and (5) *R. moschata*.

(xii) *Charlemagne* in his "Capitularies" recommends the cultivation of the Rose. In his time the flower and its perfume had become important in *upper-class house-holds.*

(xiii) The *first mention of distilled rose-water* in a European work is that by Joannes Actuarius (*Demethode medendi*, Bk. v. ch. iv) who lived *towards the end of the 13th century.*

(xiv) The *oil of Roses* was discovered towards the *end of the 16th and at the commencement of the 17th century.* The pharmacopœias of the 16th, 17th and 18th centuries contain many medicaments, flavoured with *rose-water, powdered roses*, and *essence of rose.*

(xv) The *history of the Rose in perfumery* on a modern basis dates from some time after the discovery of the *method for isolating the essential oil.*

(xvi) The *art of distilling the rose* had its origin *in Persia. According* to *Ibn Khaldun* about *810-817* in the reign of the Caliph Mamoun, the province of *Farsistan* was compelled to provide annually a *tribute* of *30000 bottles of rose-water* to the treasury at Bagdad. *Istakhri* ("Livre des Campagnes," p 73) refers to the considerable production of rose-water throughout the province of *Farsistan*, which was exported to *China, India, Egypt, Spain*, and *Morocco*. The principal seats of manufacture were at *Dschur* (the Firuzabad of today) between Shiraz and the coast, where the rose-industry is still in existence.

(xvii) The Arabs were responsible for *the introduction of distillation* into Europe. The Calendar of Harib for the year *961* refers to April being the most suitable month (in Spain) for the preparation of rose-water. *Kaempfer* ("Amoenitates" *1712*) speaks with admiration of the *roses of Shiraz* and of the considerable *trade in their products.* He says :—"Distilled rose-water is freely carried all over India and the provinces of Persia itself. It is esteemed as an article of luxury at feasts and reunions of friends. It is boiled with cinnamon and white sugar and is drunk as an alternative to *Kahwa.* Rose-water is used to sprinkle the guests with as a sign of welcome. It is more expensive than wine. The roses themselves are also expensive."

(xviii) The Rose has no special name in Persia. It is called *gul*—"the flower" *par excellence.* Kaempfer describes *a garden of roses at Persepolis.* He also gives the *first positive indication that*

we have of the definite existence of an industry for the distillation of essence of rose, which was also made at Shiraz.

(xix) About A.D 1574 GERONIMO ROSSI ("*De distillatione liber*" Ravenna. 1582) had noted that *one could separate an extremely odorous oil matter from the surface* of *rose-water*. ANGELUS SALA ("Opera Medico Chymica," Frankfort) refers *between A.D. 1610 and 1630 to the volatile oil of roses* as a substance "of brilliant whiteness, resembling spirmaceti." PORNET, towards theend of the same century refers to the sale of a small quantity in Paris. "Besides", he states, "the water which one obtains from roses, one can extract an odorous inflammable spirit, most useful for fortifying and rejoicing the heart and stomach."

(xx) By the *end of the 16th century oil of Rose was known to the chemists and apothecaries of Europe.* Although the East is the original home of the rose and its perfume it was only *about the same time that the separation of the essential oil was discovered there.*

Langles ("*Recherches sur la découverte de l'essence de Roses,*" *1804*) *fixes* the *date of the discovery in the East as 1612.* He searched Persian and Mongolian literature but found *no mention of Athr gul* (fat of the flower — *essence of rose*) *anterior to that date.* Persian poets like Hafiz and Sadi mention the rose-water and the rose, but never the *athr* (essence). No European traveller to Persia before A D. 1612 ever mentions *essence of rose.* The essence is *first described in a work* entitled "*Tarykh montakheb lubab,*" a history of the Grand Moguls from A.D. 1525—1667 written in Persian by Mohammad Achem. He mentions the *essence twice* in the chapter on the marriage of *Nur Jehan* with Jehangir and in another chapter on the *7th year of Jehangir's reign* (Hijra 1021).

Manucci (in his "*Histoire* etc", 2nd Edn. vol. i, p. 326) describes the circumstances about the *discovery of the essence of the* Rose.

Whatever be the truth of the foregoing evidence there is no doubt that *the manufacture of essence of rose in* Persia *dates from A.D. 1612.* In 1664 *Kaemper* visited Persia and found the Shiraz distilleries in a prosperous condition. A century later *Col. Polier* wrote about the *essence of roses* (*Asiatic Researches,* Vol. i, xvi). About this period *Forster* ("*Voyages de l'Inde* etc.," Vol. I, 294) mentions *Kashmir roses* as the most beautiful in the world and refers to the

popularity of the *essence of the rose*. *Olivier* ("Voyage etc.". 1907, Vol. V, 357) found the industry in full swing in *Shiraz*, *Farsistan* and *Karman*.

(xxi) The distillation of the *essence of rose* appears to have been *introduced from Persia via Bassorah and from Arabia into India first to the town of Kanauj* on the Ganges and then to *Ghazipur*, where the industry is still in existence.

(xxii) The *Turks* took the industry of the distillation of Roses to Europe. *Essence of Roses* was distilled in the island of *Chios* at an early date, and, according to a tradition still current in Bulgaria, it was from *Tunis* that the industry was *brought to Kazanlik by a Turk in about 1680*. About the same time the distillation of Roses was *introduced into France* from the African coast.

Parry's *Encyclopaedia* next deals with the Rose Perfume Industry as it exists at present. According to the account recorded in this Encyclopaedia *Bulgaria* supplies the greatest part of the world's consumption of the *otto of rose*. The Rose cultivated in Bulgaria for this purpose is *Rose Damascena*.

About the *Rose industry in India* we are informed here as follows:—

(1) For upwards of two centuries Rose distilleries have existed at *Ghazipur*, *Lahore* and *Amritsar*. (See Gadre and Muckerji in *Journal of Indian Industries and Labour*, 1922, i, 86).

(2) In 1920 the U. P. Government instituted investigation into the Rose industry and thereafter conducted certain experiments.

The account of the Rose industry in other countries (like France, Germany, Anatolia, Russia, etc.) has no historical importance and hence need not be taken note of in the present study.

I hope the foregoing data, bearing on the history of the Rose and Rose products viz. the *Rose-water* and *Attar* or *Otto of Roses*, collected by me from several sources will clarify our knowledge of this problem. It is still a mystery why there are no references to the Rose or Rose water in Sanskrit literature in spite of the contact of India with Rose-growing countries like Persia, Babylon, Egypt, Greece, Rome etc. for more than 2,000 years. I propose to deal in a special paper with the history of the Rose in India on the strength of documentary evidence but for this purpose it was found essential to record some historical data about the Rose and its products in their world-perspective. The chronology of

these data as recorded in the present paper will be clear from the followingtable :—

Chronology.	*Reference.*
	R=Rose flower and plant ; RW=Rose-water ; RA=Rose Attar.
B.C. 2000 to A.D. 1800	—First period of the history of ancient Garden Roses which *flowered once a year.*
A.D. 1800 to 1944	—Introduction of *perpetually flowering China Roses* into England and their breeding with ancient Garden Roses.
B.C. 484	—Birth of the Greek historian *Herodotus*, who describes *roses* in the Gardens of Midas.
B.C. 287	—Death of *Theophrastus* the father of Botanical Science, who refers to R in his work *On Plants*. Theophrastus was born about 371 B.C.
B.C. 70 — A.D. 19	—*Virgil* refers to the famous *R gardens* at *Poestum* in his *Georgics*.
A.D. 23—79	—*Pliny* gives botanical description of R in his *Natural History*—Use of *rose-water, rose-leaf* and *perfumed leather* by the Romans.
A.D. 768	—*Charlemagne* in his "Capitularies" recommends the cultivation of R.
A.D. 810—817	—Reign of Caliph Mamoun—*Farsistan* in Persia compelled to pay a tribute of *30,000 bottles* of RW to the Bagdad treasury—RW from Farsistan exported to *China, India, Egypt, Spain* and *Morocco*.
A.D. 961	—Calendar of Harib refers to *April* as suitable month for preparation of RW (in Spain)—The Arabs introduced R distillation into Europe.
A.D. 1275—1300	—First mention of distilled RW in a European work of *Joannes Actuarius*.
A.D. 1485, 1511	—Picture of R plant with flowers in an Herbal "*Ortus Sanitatis*", Venetijs, *1511* (Latin reprint of original German Edition, Mainz, 1485)—See plate facing p. 62 of *Plant Sciences*, by Howard S. Reed, Waltham (Mass.) U.S.A. 1942.
A.D. 1573	—Usage of the word 'Atrain' as the name of a street (see *Hobson-Jobson*).

c. A.D. 1574	—*Geranimo Rossi* ("*De distillatione liber*" Ravenna, *1582*) had noted that *one could separate an extremely odorous oil matter* from the surface of rose-water.
A.D. 1590	—Roses from Persia planted in India. Free use of *Rose-water* in the preparation of cosmetics mentioned in the *Ain-i-Akbari*.
A.D. 1610—1630	—*Angelus Sala* refers to the "*volatile oil of roses as a substance of brilliant whiteness*."
A.D. 1612	—Discovery of *Attar of* R by *Nur Jehan*.
A.D. 1639	—Usage of the words "*Oter*," "*Ottar*" in the *Shorter Oxford Dictionary*.
A.D. 1656—1717	—Manucci describes the discovery of the RA.
c. A.D. 1667	—RA first described in a Persian work "*Tarykh montekheb etc.*" on the history of Grand Moguls from A.D. 1525—1667,
A.D. 1670	—Richard Edwards mention "Otter."
c. A.D. 1676	—RA mentioned as "अत्तरः पुष्पसारः" in the *Rajavyavahārakośa of Raghunātha*.
c. A.D. 1680	—Rose industry taken to Bulgaria by a Turk.
A.D. 1684	—Kaempfer's visit to Persia—He found *Rose distillaries* in a flourishing condition.
A.D. 1712	—Kaempfer refers to "*Atthaarchoneh*" of the Royal House-hold of Persia (*Hobson-Jobson*).
	—K. also refers to *rose-water* carried from Persia to all over India.
A.D. 1759	—"*Otter box*" (Hobson-Jobson).
A.D. 1794	—Edward Moor's note on RA in his *Narrative* ·
	—गुलाची अत्तर worth Rs. 5 used at a banquet given to Nana Fadnis.
A.D. 1804	—*Langles's* work on "Researches on the Discovery of the Essence of the Rose" (in French).
A.D. 1807	—Olivier found R industry in full swing in *Shiraz, Farsistan* and *Karman* in Persia.
A.D. 1824	—Heber's reference regarding the preparation of RA.
A.D. 1836	—M. Boitard's work on Roses (in French), Paris.

P.S.—After this paper was prepared I came across the following remarks on the *Rose* by Howard S. Reed in his *History of Plant Sciences* (U. S. A., 1942) p. 123 :—

Chapter VIII (Gardens)—

"European gardens have depended upon *Oriental species of roses* for breeding stock for many generations. LA QUINTINYE (*"Instruction pour les jardins,"* (1697) edition) wrote of the *Rose of China*, but said it had several other names. He mentioned the size of the shrub, saying that it eventually attained the height of a tree. The parents of the modern *cultivated rose* of our gardens were *three Chinese species*. One of these, the *China Monthly rose* (*Rose Chinensis*) had been *brought to India early in the seventeenth century* by a Captain of the British East India Company. It was *introduced into Holland* in 1781 under the name *Bengal Rose*; hence it was *thought to be a native of India*. Sir Joseph Banks *brought it to England* in 1789. In 1804 the first rambler rose (*R. multiflora*, var... *Carnea*) reached England, followed in 1808 by the first *tea-scented rose* (*R. odorata*) *both coming from China*. These *three species*, then, have *furnished the entire stock* from which our modern roses have developed, hybridization and horti-cultural techniques having produced the wealth of garden forms now known."

In view of the important role played by the China rose in the development of modern roses it is worth while knowing the history of the Rose in China as reflected in Chinese sources botanical or otherwise. In this connection I made an inquiry in 1944 of Prof. Hsü Jen of China then working with Dr. Birbal Sahni at the Lucknow University. Prof. Hsü was kind enough to write in this matter to his friend Mr. T.T. Yü, a research fellow in the Yunnan Botanical Institute. Mr. Yü responded promptly and sent me through Prof. Hsü his Notes on 57 varieties of Chinese Roses, cultivated in North China, East China, West China, N. W. China. S. W. China, South China, Central China, Central Asia, Korea, Japan, Burma, N. E. China etc. The names in this list are too technical to be reproduced here. I may, however, mention some varieties by their popular names such as—

(1) *Bank's rose*, for covering banks and rockey slopes.
(2) *Macartney Rose* (E. China).
(3) *Himalayan Musk Rose* (W. C.).
(4) *China "Monthly Rose"* of many forms and varieties.
(5) *Cabbage Rose* (Caucasus) introduced.
(6) *Cherokee Rose* (E. and S.) — fruit and seed used in medicine.
(7) *Seven Sisters Rose.*
(8) *Tea Rose* (*R. Odorata*)—S. W.

While forwarding to me Mr. Yü's list of 57 Roses Prof. Hsü sent me some valuable information about Chinese Roses and literature pertaining to them as follows :—

Lucknow, 9th Sept. 1944—"Two famous Chinese books dealing with plants are *Chih-wuming-Shih-tu-K'ao*, a manual of flowering plants with illustrations of figures and *Chyun-fanpu*, a manual of ornamental plants. The former is a great book, written by *Wu-Chi-Chun* in the early period of the Ching Dynasty, *300 years ago*. The author described adequately *1714 species* of plants with illustrations of accurate figures to certain amount, from different parts of China including Yunnan province. It is a great work and one can trace the plants by his figures even at present. One best Chinese taxonomist had traced these plants and wished to give some supplements, with Latin names etc. for publication but very unfortunately the work has not yet been finished as he died by illness two years ago. The second is only a *manual of ornamental plants*, written by *Wang Shiang Ching* in Sung Dynasty, about *10th to 11th century*. Besides these, a great *Chinese Materia Medica Pên-tsao-Kangmu*, was written by the great herbalist, *Li Shee-tsin* of Ming Dynasty in 1595 but it is not merely a manual of plants, because it deals with some minerals and animals. As to the *most ancient Chinese Materia Medica*, probably it is the book "*Shen-nung-pên-tsao-Ching*," the *materia medica* of Shen-nung, which was believed to have been started as early as in the Han Dynasty since 31 B.C. and perfected by *Tao Hung-Ching* (A.D. 456-541).

In Mr. Yü's *Notes on Roses*, *Rosa banksiae* has been described in two books, *Hua-Ching*, the key of flowering plants, and *Chun-fan-pu*. The former is also a manual of ornamental plants, but I am sorry, I do not know the date and author of this book. *Rosa laevigata* has been described in *Jia-yow-pên-tsao*, a *materia medica* written by *Jang Yü-Shee* and others in A.D. 1057. *Rosa microcarpa* has been deseribed in *Pên-tsao-shih-yee*, Materia Medica Supplementum by *Chao Shyne-meng* in 1765 A.D. *Rosa Chinensis* has been described in *Pên-tsao-kang mu*; *Rosa multiflora* in *Shen-mung-pên-tsao-Ching*; three varieties of *Rosa multiflora* in *Chun-fan-pu*, *Rosa Roxburghii* in *Chih-wu-ming-shih-tu-Kao*; *Rosa rubus* in *Rua-Ching* and *Rosa rugosa* in *Chun-fan-pu*." I hope the above remarks of Prof. Hsü will widen our knowledge of the Chinese roses and their historical back-ground.

In concluding these few notes of mine on the history of the Rose and Rose-products in their world-perspective I have to record my hearty thanks to Dr. Sadgopal, who stimulated my interest in the history of *Gandhaśāstra*, to Professor *Hsü* and Mr. Yü for the painstaking scholarly manner in which they supplied some information about the Chinese Roses and their history and finally to Dr. Birbal Sahni not only for putting me in touch with these Chinese scholars but also for stimulating my study of the age-long history of Indian plants, a vast unexplored field, as it appears to me when I study problem after problem connected with this field.

5. Buchanan's Account of the Manufacture of Rose-water and other Perfumes at Patna in A.D. 1811 and its bearing on the History of Indian Perfumery Industry*

In my paper on "Some Sanskrit verses regarding the Manufacture of Rose-water" (found in a MS of A.D. 1851) I have recorded the following facts bearing on the history of *rose* and *rose-water* in India :—

(1) As the Sanskrit verses regarding the manufacture of rose-water by the process of distillation are found interpolated in a MS of A.D. 1851 by some Sanskrit Pandit we can easily suppose that the manufacture of rose-water from roses cultivated on Indian soil had commenced long before A.D. 1851. We must, however, investigate the exact chronology of this indigenous rose-water by recording earlier references to the manufacture of indigenous rose-water found in Sanskrit or non-Sanskrit sources.

(2) The *Rājavyavahārakośa* (c. A.D. 1676) refers to *gulāb* or rose-water but does not record the process of its manufacture.

(3) The work *Kṣemakutūhala* of *Kṣemaśarman* (c. A.D. 1550) refers to a flower *goulāla* which may perhaps mean a *rose-flower*.

(4) Bhagavantrao Yādava refers to *gulāb* or *rose* in his Marathi poem in praise of Nana Saheb Peshwa (A.D. 1721-1761).

(5) Raja Shahu of Satara ordered in A D. 1723 twenty bottles of *rose-water* from the British though Kanhoji Angria. This reference suggests that indigenous rose-water was not available to Shahu or that the imported rose-water was of superior quality.

(6) In MSS dated 1787 A.D. and 1874 A.D. of a work called *Hakim Pharāsis* which is a mixture of Sanskrit, Marathi and Hindi, we find references to *gulāb* flower, *gulāb attar* and *gulkand*, all of which show the growing popularity of the *rose* in India.

(7) The Hindi poet Bihari (A.D. 1603—1663) refers to *gulāb* in the sense of *rose-flower* and *rose-water* in his *Satasai*.

(8) The *rose-water festival* current at the court of the Mogul Emperor Shah Jahan (A.D. 1628—1658) suggests the use of imported *rose-water* rather than the indigenous one.

New Indian Antiquary, Vol. I, pp. 181-185.

The foregoing data, though useful for an accurate history of *rose-flowers* in India, does not enlighten us as to the history of the indigenous manufacture of rose water. I shall, therefore, record in this paper some more data regarding this manufacture as recorded by Francis Buchanan in his *Patna-Gaya Report* (A.D. 1811—12) published by the Behar and Orissa Research Society. These data support the Sanskrit verses[1] regarding the manufacture of rose-water found interpolated in a MS of A.D. 1851.

Speaking of persons by whom commerce is conducted, Buchanan states in his *Patna-Gaya Report*[2] as follows :—

Vol. II, p. 689—("The *Gandhi* deal in *rose-water*, perfumed oils and essences, toothpowder and finer kinds of implements used for smoking. They have capitals from 100 to 1,000 Rs. The perfumes are also retailed by those who make them."

Page 768—Buchanan mentions 8 *Distillers of rose-water* and essences at Patna City and 3 Chambeli-flower-oil-makers at Bar.

Page 777—In *Table 44* Buchanan records the exports and imports of *Perfumes* and *essences* as follows : –

Patna	Exports	Rs.	3,100	Imports	Rs.	5,300
Patna and other Divisions ...	Exports	Rs.	4,000	Imports	Rs.	5,950

The above figures clearly show the economic value of the perfumery trade (in A.D. 1811) of which *rose-water* was one of the items. Buchanan's remarks on the manufacture of articles of Indian perfumery are highly informative and useful for the history of this perfumery and hence may be quoted in extenso. Speaking of the "common artists" he says :—

Pages 631 ff.—("Those who distil *perfumes* complain that the business is overstocked and that the prices have of late been much reduced; but they still seem high, and no dependence can be placed on what they say, no two of them agreeing in their account but *they are in easy circumstances*. They use a *copper still*[3] which may hold from 150 to 200

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1. Vide *Poona Orientalist*, Vol. III, Nos. 1-2, pp. 1-8, 1943.

2. Published by Behar and Orissa Research Society, Patna. Vol. II, p. 689—Buchanan refers to betel-leaf-sellers as follows :—

"The *Tambul is* retail *betel-leaf* and the *lime* used for chewing, a few in shops but mostly in the streets. They are not all of the Tambuli Caste. They have as Capitals from 8 annas to 50 rupees except in Patna, where some have to the extent of 500 Rs.

3. This is the *Dolayantra* referred to in the Sanskrit verses about rose-water. In these verses the दोलायंत्र is called ताम्रज (made of copper). For a picture of *Dolayantra*, see Plate 11 (10), on p. 114 of *Aryan Medical Science* by Thakore Saheb of Gondal, London, 1896. The Sanskrit verses call *rose-water* "गुलाबपरमाभिधः पुष्पद्रवः." It is very cold (सुशीतल) and fragrant (सुगंध). The use of silver basin (रौप्यपात्र) and silver tray (रौप्यशराव) referred to in Sanskrit verses is absent in Buchanan's description.

lbs. of water, and has a flat head. A tube bent at right angles conveys the vapours into a *copper cucurbit*, which serves as a recipient and is placed in a wide-mouthed earthen vessel to contain water for condensing the vapour. The whole apparatus and the place where it stands are exceedingly slovenly.

The artists make three kinds of *water*, from *roses*, from the *Pandanus* (Keora)[4] and from the lime (*citrus*); but the quantity of the two latter is very trifling. The *rose water* is either *single or double-distilled*, the latter being drawn a second-time from *fresh roses*. These flowers are only used when fresh gathered. Even in three hours they are supposed to lose their perfume. The single-distilled rose-water sells, by whole-sale, at from 12 to 13 Rs. and by retail, at from 16 to 20 Rs. the *man*, which weighs about 76 lbs. Each distillation, according to some, for a *man* of water requires 22,000 *roses* and about 56 seers of water, of which 40 only are drawn off. The *double-distilled rose under* retails at 2 Rs. a seer (1 $^{9}/_{10}$ lb.), and being *only in demand among Europeans*, is not made except when commissioned. Othersallege that all is distilled twice, as such alone will keep, and that what is required for common use is diluted with water when wanted.

The other waters are distilled in the same manner. All their essences consist of *sandal-wood* oil impregnated with various smells, for imbibing which, this oil has a strong capacity. The best workmen distil their own sandal-oil but some is imported. The sandal wood comes from Malabar. It is rasped, soaked three days in a little water, and the oil is found floating on the surface of water in the recipient, and distilling over into this the waters from various substances such as *roses*, the flowers of the Bel (*Jasminum Sambac W.*), spices, the roots of the Andropogon called Kus, the flower of the Chameli (*Jasminum grandiflorum*), that of the Mulsari (*Mimusops Elengi*), Agar wood (*Agallochum*), the flower of the Keara (*Pandanus*), the flower called Juhi (*Jasminum*) and even clay. The most common by far is the *rose*, and what is in almost universal use among the natives of India, as *atur of roses* is *sandal-wood oil* impregnated in this manner, which, according to its quality, sells at from 1 to 2 Rs. for a rupee weight while the *real essential oil of roses* costs 50 *Rs*. at Patna. The sandal oil seems to extract the whole perfume from the rose-water, as this passes into the recipient.

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4. This is the *Ketaka* or *Ketaki* plant of classical antiquity. Kalidasa refers to it :– "केतकैः सूचिभिन्नैः" (*Meghaduta 23, Raghuvamsa*, VI, 17; XIII, 16; II, 23 ("हसितमिव विधत्ते सूचिभिः केतकीनाम्") and II, 20 (flower of this plant). *Ghatakarpara Kavya* 15 refers to it :– "प्रतिभांत्यद्य वनानि केतकानाम्."

The next most common essence, called *Motiya* is made from Bel flower (*Jasminum Sambac*), and is cheaper than the common essence of roses. The only other essence commonly used is that impregnated with the odour of spices and called *Mujmua*. The ingredients vary from 5 to 50, but cloves, nutmegs, greater and lesser cardamoms, and saffron are the most common. It sells for from 1 to 3 rupees for a rupee weight (3 drams apothecaries weight) but is not at all agreeable to my sense of smelling which is indeed the case with all the others. By the skill, however, of *European artists* they might perhaps be rendered useful ingredients in perfumes as they preserve the smell of various very agreeable odorous *substance, which could not be readily procured in Europe, especially that of the Pandanus*[5] *flower*. The most strange of these essences is that made with the *clay* which communicates to oil of sandal-wood the smell, which dry clay emits, when first wetted, and which to me, is far from agreeable. It sells at 1½ rupee for each rupee weight. The best sandal oil costs here about half a rupee for the rupee weight.

The workman of Bar, instead of a *distilled* oil impregnate an *expressed oil* with the odour of Chambeli flower (*Jaminum grandiflorum* W.) At the beginning of the flowering season they take 82 seers (about 169 lbs.) of the seed of sesamum (Til), and every fair day during the season add to one-half of it as many flowers as they can collect, which may be from one-fortieth to one-fourth of its weight; next day these old flowers are picked out and put to the other half of the seed. The season lasts about three months and the whole quantity of flowers may in that time equal the whole weight of seed ; but one-half of the seed is impregnated entirely with the fresh flowers, while those given to the other half are withered, and have lost part of their strength. The seed is then squeezed in a common oil mill, and each gives 12 seers, or about 24 lbs. of oil ; that impregnated by the fresh flowers being of twice as much value as what is impregnated with the withered. I am told that the 12 seers of the best kind are mixed with 96 seers of common oil of Sesamum, and the mixture here sells at half a rupee for the seer so that it brings 54 Rs. The people who make it valued it at 12 Rs. and thus made it appear that they lost by

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5. Vide Dr. Sadgopal's article on *Kewda* in "*Soap, Perfumery and Cosmetics*, May, 1937. The Kewda or *Pandanus Odoratissimus L.* Occurs in India, Arabia and Persia. In India occurs in Bengal, South India, Central India, United Provinces and North-West Burma. The superior type of Kewda is found in Ganjam Dist. of Orissa.

the manufacture. *but they live easily,*[6] and do no other work than to pick the flowers from among the seed, and mix and retail the oil. The inferior oil at the some rate will bring 27 Rs. and the total value will be 81 Rs. The real charges are 82 seers of Sesamum seed, at 25 seers a rupee =3 Rs. 5 as. 9 pies ; 44 seers of oil of Sesamum, 12 Rs. 12 annas ; 2 *mans* of flowers, 12 Rs. ; expressing the oil 8 annas, , *total* 19 Rs 9as. 9 pies. ; *profit* 61 Rs. 6 as. 3 pies.

Those who express oils from various seeds (Teli) use the same mill exactly that is used in the districts hitherto surveyed.

Buchanan's survey of Perfumery industry as recorded in the foregoing extracts shows European interest in Indian perfumery at the time of the British advent in India. As a result of this very interest India lost her world markets and "European nations began seriously entering the domain of perfumes also. A time came when France and Germany captured all the markets for their aromatics and to-day we find India, the cradle of Perfume Industry, as one of the biggest consumers of foreign perfumes. While Europe made rapid advance with the help of modern scientific knowledge, India lost even that much which it treasured so successfully for centuries past."[7]

It appears from Buchanan's account of the distillation of Rose-water in A.D. 1811-12 at Patna that owners of big gardens were cultivating the rose at this centre with a view to supplying the necessary rose-flowers for manufacturing *rose-water* and *attar* of *roses* as well. We must now trace the account of this manufacture by Indian perfumers earlier than A.D. 1800 and find out the exact chronology of the rose-water manufacture as started by Indians. As there can be no distillation of flower perfumes without

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6. This remark reminds me of the following stanza of the *Pañcatantra* about the lucrative character of perfumery trade :—

"पण्यानां गान्धिकं पण्यं किमन्यैः काञ्चनादिभिः ।
तत्रैकेन च यत्क्रीतं तत् शतेन प्रदीयते ॥"

7. Vide Dr. Sadgopal's article in *Indian Soap Journal* (July-Sept. 1943) on "An upto-date survey of Indian Perfumery Industry". I note some points from this interesting article :

(1) Big centres of perfumery industry sprang up at Kanauj, Jaunpur, and Ghazipur, a mention of which is made in *Shah Nama* of Firdousi (c. A.D. 1030).

(2) Some of the old houses of perfumery at Kanauj are even to-day masters of millions and billions.

(3) Avicenna, the Arabian physician was well versed in the art of making perfumes. When Sultan Saladin made his triumphant entry the walls of the mosque of *Omar* were washed with *rose-water* brought from the East.

flower-gardens Buchanan has taken care to record his notes on these flower-gardens, in which *rose* was prominently cultivated as will be seen from the following extract :—

Pages 518-519 (Vol. II) — *Flower Gardens.*

"Flower gardens for ornament are not quite so much neglected as in Bhagalpur. Raja Mitrajit, two or three other Zemindars, and many merchants of Patna have such ; but they are far from being neat, or from containing a great variety of plants. The only garden worth notice is one belonging to Baidyanath Babu, a banker of Patna. In the whole of both districts there may be 200. The *garland makers* especially near Gaya, raise a considerable quantity of flowers for sale : but they study very little to make their garlands ornamental. They make them of whatever flower is reared most easily at the season, so that they have little or no variety. During the cold season when I travelled through the district, no flower almost was in use, except that of the *Tagetes erecta. Those who extract essences have several flower gardens at Patna and Bar.* At the former between two and three hundred persons have *rose-gardens* containing from two to ten Kathas each that is from 1/15 to 1/.3 of an acre. The *rose* which is cultivated in these gardens is said to have originally come from *Busorah* and at Patna is called by that name ; but in Bengal it is called the *Patna rose.* It does not seem to differ materially from the common *red rose* of European gardens (*Rosa gallica)*. It is propagated by *cutting* in the rainy season. The cuttings are planted in a bed until they take root and are then placed three or four together, in one hole, the holes being from two to three cubits distant. Every two or three years the bushes are pruned. They flower from the middle of February to the middle of May and must be watered in the dry season. The flowers which are rather smaller than those in Europe, sell to the distillers at from 1000 to 4000 to the rupee. They are allowed to expand fully before they are sold. At Bar those who make essences use almost entirely the *Chambeli*, which botanists call *Jasminum gradiflorum.* I have very strong doubts whether it can be considered as a different species from the common jasmine of Europe.

Most of the gardens belong to the persons who make the oil. These pretend to be losers by the concern so that little dependence can be placed on what they said as *they live very easily* and perform no kind of manual labour. They alleged that all the gardens amount to 25 bigahs or about 17 acres ; but others alleged twice the extent. I could procure no estimate of the value or the quantity of the produce of a bigah on which the least dependence could be placed.

The gardens are managed much like those of the *rose* tree but the plant does not require pruning. It is not supported, as it grows more erect than in Europe. It produces its flower in the rainy season. A great many officinal plantsare reared in the gardensnear Patna but I shall here pass them over as I have done those which grow spontaneously because I could say nothing on the subject but what being entirely scientific, would be altogether unintelligible except to the botanist and physician."

The above account of the growing number of flower-gardens in Bihar and in particular of the rose gardens which supplied rose-flowers for the distillationof rose-water is highly instructive and interesting. We may now link it up with theaccount of the cultivation of roses as described in a Hindi work "*Bag Vilas*" composed by the Court-poet Siva Kavi, patronized by Maharaja Daulatrao Scindia of Gwalior (A. D. 1780—1827). Daulatrao was a ruler of aesthetic tastes. He was a great lover of gardens and gardening and laid out the famous *Phool Bag* of Gwalior. Śiva Kavi composed this treatise to please Daulatrao. In this treatise he refers to the *four types of roses* and many other varieties of fruit and flower trees worth planting in a model garden. About roses this poet says :—

—"जल दे आश्विनमासमें, पुनि सुन लेइ जताव ।
पूस मास मे कलम कर, सींचो सरस गुलाब ॥
आवे कली गुलाब में, तबको सुनो विधान ।
कृष्णपक्ष भरि माघ में, नीर न दीजे जान ॥"
—"पेवन्द सरस गुलाब को, अस सेवती सुजान ।
बहुरो सदा गुलाब को, जिगर एक अभिराम ॥"

Both Daulatrao Scindia and his Court-poet Śiva Kavi were contemporaries of Francis Buchanan and hence their interest in gardens and cultivation of roses at Gwalior, *c.* A. D. 1800, is contemporaneous with the cultivation of rose gardensat Patna so graphically described by Buchanan in A.D. 1811-1812. As I have not read the *Bag Vilas* of Śiva Kavi I cannot say if this treatise contains any reference to the manufacture of rose-water at Gwalior *c.* A.D. 1800.

5. Studies in the History of Indian Cosmetics and Perfumery

A Critical Analysis of a Rare Manuscript of Gandhavāda and its Marathi Commentary

(Between c. A.D. 1350 and 1550)*

In a paper contributed by me to the *Journal of the Bombay University*,[1] I have given a critical analysis of a rare treatise on the science of cosmetics and perfumery represented by a single MS in the Raddi Collection of the Bhandarkar O. R. Institute, Poona. This work is called the *Gandhasāra* by Gaṅgādhara. In the same bundle in which I discovered the *Gandhasāra* there is another work written in the same hand called the *Gandhavāda* with a Marathi commentary. Folios 1 to 27a comprise the *Gandhasāra*, while folios 27b to 49 comprise the *Gandhavāda* with commentary. After the colophon of the *Gandhasāra* the MS of the *Gandhavāda* begins as follows :—

Folio 27b— "वरनलिनवदनमिलिता जलजदनलदसहिता
मदमदनलगमविहिता मधुतगरकरजपृदिता
करालविबोधितानिशाकरसंयुता ॥ लतावसंतसेविता भुजंगविजृंभिता ॥"

॥ हरये नमः ॥ **गंधवादु** ॥

नखपलत्र भागपल गंधं कृष्णागरपलं ।
नख द्विपलकं चैव द्विपलं जाति कोसकं ॥
मांसी शैलजतालीस उशीरशतपत्रकं ॥ १ ॥
चंपाजलद लोबान गंहलासटि पुंनकं ।
पृथक्पलमितं भागं वर्क द्रवणभावितं ॥ २ ॥
सल्वाचाबरं चैव पृथक्द्वादशशोणकं ।
त्वगेला च लवंग च कोष्टं चेत् शदशाणकं ॥ ३ ॥
त्रिवारं वस्त्रपूतं च नखं च घृतभावितं ।
पुष्पावासं सुवासं च केतक्यादलपंचकं ॥ ४ ॥
॥ मन्मथोदयपिष्टक ॥

टीका ॥ श्रीखंड पलें २० । अगरु पलें ६) नख पलें २ । जायपत्री पलें २ । मांसी पल १ । सैलज पल १ । तालीसपत्र पल १ । वाल पल १ । भोलश्री टांक १२ । पांचि टांक १२ । अंबसा टांक १२ । तज टांक १२ । येला टांक १२ । लवंग टांक ६ । कोष्ट टांक ६ । नख टांक ६ ।

New Indian Antiquary, Vol. VII, pp. 183-192.

1. *Journal of Bombay University*, Vol. XIV, Part II, pp. 44-50.

तूपें तलीन तावेट होति येतुंछ दलता घालिजे । तेणं तुपं मोजयिजे आडि काढिता घालिजे ॥ फुलांचा वासु दीजे ॥ उत्तम वासु होय ॥ राज्या योग्य देव योग्य बुका होए ॥ अति उत्तमु होए ॥ श्रीगंध उगाळुनि घालिजे ॥ हा महासुगंध होए ॥

मांसी वकुल सेवंती लवंगाम्रनिशा पृथक् ।
अष्टमाषं न्यसेवान्ये गांठिनस्तथ सैलजं ॥
दवना मरु ब्रह्मी च सेलारस पृथक् चतुः ।
कर्पुरः चंपकलिका पृथक् द्वादशमाषिकं ॥
विंशति मद्रमुस्ता च पत्रपुंनागकोष्टयोः ।
पृथक्माषिकं योन्यं निशा ज्याज्या पलं पलं ॥
पलार्द्ध सर्वेव गेदश्च त्रिवारं वस्त्रगालितं ।
नख पृतपाच्यं च पश्चात्सिलारसस्तका ॥
पुष्पवासं न्यसेच्छात्री राजयोग्यं च पित्तहा ।
वर्णांधरप उर्वीक्षिजनवस्य मनोहरं ॥

टीका ॥ मांसी पलें ८ । वकुल म्हणता भोलशरिफुल पलें ८ । सेवंती पलें ८ । लवंगा पलें ८ । आंबे हलद पलें ८ । गाठिवना पलें ८ । मरवा पलें ४ । नख पलें ४ । सेलज पलें ४ । दवना पलें ४ । ब्रह्मी पलें ४ । सेलारसु पलें ४ । कर्पूर पलें १२ । चंपिकलि पलें १२ । मद्रमुस्ता पलें २० । पत्रक पलें २ । पुनागे पलें २ । कोष्ट पलें २ । हालदि पल १ । जाईफल पल १ । गेरु पल ॥ । नख तुपें तलीनि घालिजे ॥ वस्त्रगाळित । तीनि वेळकिजे ॥ मग सेलारसाची भावना दीजे ॥ फुलाचा वासु दीजे ॥ राजवस्य स्त्रीवस्य जनवश्य मनरंज बुका सर्वपित्तहरी ॥ २ ॥"

Folio 31 —॥ अथ कस्तुरीपरीक्षा ॥
—॥ कस्तुरीची करणी ॥

Folio 32 —॥ पुनरपि कस्तुरी करणी ॥

Folio 32b —॥ अथ कर्पुर करणी ॥
—॥ अथ जवादिची करणी ॥

Folio 33b —" कावेल तेल "
" तैल्यं वाबरकावरी च महुला लोवान श्रीखंडकं । मांसि चागरकं " etc.

Folio 34a —" दूसरा काव मेळवणी "

Folio 35b —" केवडे फुलाचा वासु दीजे । उत्तम बुका होये ।"

Folio 36-37—Recipes for several varietiesof बुका ।

Folio 37 —" सुगंध तैल "

Folio 38 —" भोजराज कृत वादि "

Folio 39 —" अथ गंधराजु ॥"

Folio 40b —" या नाव मृणालवल्लभु ॥"

Folio 41a —" ॥ या नाव राजमनोहरु ॥ **मानिनीमानंभंजन**—गंधराजु । होये । "

Folio 41b —" या गंधराजा नाव **कंद्र्पकोलाहलु** ॥ ३ ॥ "

—" या गंधराजा नाव **कामिनीमोहन** "

Folio 42a —" या नाव **मदनकामेश्वर** "

—" या नाव **जनांकुस** । **रामाप्राणहरु** ॥ ७ ॥ "

—(" सर्वे **जनांकुशो** नाम **कामिनीप्राणवल्लभाः** ")

Folio 42b —" या नाव **कंद्र्पसेखर** "

Folio 43a —" हा गंधराजु **इंन्द्रेनिर्मिला** (" तैलं **देवेन्द्रनिर्मितं** ") "

Then follow some more recipes for गंधराज, each ending with a certificate " होये " or " गंधराजु चोखट "

Folio 45b —" अथ **धूपाची** करणी "

—" **राजयोग्य** धूप "

Folio 46a —" **अनंगसुंदर** (धूप) नाम इंद्रें निर्मिला "

—" या धूपा नाव **कोलाहलु** "

Folio 47 —" या नाव **कुमारधूपु** "

—" दिव्यवर्ति " (" उत्तम**वातिया** होति ")

—" या नाव **सुंदरवर्ति** "

—" या नाव **भूपालवल्लभवडि** "

Folio 47b —" अथ **उदयति** "

Folio 48 —" **ऊद्मेलवणी** "

—" सुगंध तैल "

—" काचा तेल "

Folio 49 —" ॥ इति युका गंधराज आणि तेलिया गालिया तथा सुगंध तथा काचिया तेल तथा कस्तूरीची परीक्षा व करणी व जवादिची करणी तथा कर्पूरकरणी तथा धूपकरणी गोलिया तथा उदवत्ति यितुक मेलावा परिपूर्ण जाला असे ॥ ॥ इति **गंधवाद**संपूर्ण ॥ "

Folio 49a —

युका	युका	कस्तुरीकरणो	युका	युका
युका	युका	मृगनाभिकस्तुरी	युका	युका
युका	युका	भास्कर चोखट	युका	युका
युका	युका	जवादि	युका	युका
युका	युका	जवादि	युका	युका
युका	अथ	काचेतेल	युका	युका
	कस्तुरीकरणी	काचतैल	युका	युका
		युका		युका

Folio 49b —

पुडा	जवाति	गंधराजु	गंधराजु	धूप	गंधराजु
पुडा	सुगंध	,,	,,	उद्वति	,,
पुडा	गंधराजु	,,	,,	टटिया	,,
पुडा	,,	,,	धूप	उद्वति	,,
इति सुगंधतंलं	,,	,,	,,	,,	,,
सुगंध जवादि शुद्ध	,,	,,	,,	धूपु	उद्वति
जवादि	,,	,,	,,	सुगंध	,,
जवादि	,,	,,	,,	,,	गालिया
	,,	,,	,,	गंधराज	भाषा गंधवादानुक्रमणिका
	मदनकामेश्वर	,,	,,		समाप्ता

The MS containing thesetwo treatises viz. (1) the *Gandhasāra* and the *Gandhavāda* with *Bhāṣā* commentary appears to be about 200 years old, judging by the condition of the paper on which it is written and also its script. The question about the authorship and chronology of these two treatises may now be discussed as follows :—

(1) Is it possible to suppose that the treatise *Gandhavāda* is also the work of Gaṅgādhara, the author of the *Gandhasāra* ?

There is no definite evidence to answer this question in the positive or negative.

(2) Who is the author of the *Bhāṣā* or Marathi commentary on the *Gandhavāda* in Sanskrit ?

This question also cannot be answered definitely though it is possible to suppose that the author of the *Gandhavāda* himself composed the Marathi commentary on his own work.

(3) What is the chronology of both these works and the *Bhāṣā* commentary ?

All these texts are certainly more than 200 years old. The inference based on the condition of the manuscript and its script finds corroboration from the old Marathi language of the commentary. At any rate the form of the Marathi language of the commentary will provide us some criterion to fix its chronology approximately. I note below some words and expressions from the commentary to enable scholars to fix its chronology :—

— येला (Sans. एला) (27)
— तूंप तळौनि (27)
— घालिजे, कांजे (33)
— होए, होये (28)
— जाए (30)
— भिजों दीजे (33)

— वासु दीजे (27), भावना दीजे (fol. 28), छिंज (29), वालविजे (32)
— राजे ठाकुरु (34)
— उतरलिया मेलविजे (34)
— दारचिनी (35), दार्लचिनी (36)
— चोखट (35)
— खोबरें जुनें (38)
— हातें मर्दौनि पाणी सांडिजे (40)
— खादिराचा डीकु (42)
— ऊद मेलवणी (48)
— रसें वाटिजे (33)
— गंधराजु (43)
— तिलंल (45)
— तेणें भिजौनु कढै घालुनु (46)
— चोखटु (46)
— वातिया होति (47)
— चूर्ण करुनु खलिजे (47)
— सिलारसु मधु पाएयें कालविजे (47)

Judging by the above forms of the Marathi language of the commentary I may tentatively assign this commentary to the latter half of the 15th century or the middle of the 16th century A.D.

The Marathi commentary is useful linguistically because it gives us the vernacular equivalents for some of the Sanskrit terms in the text of the *Gandhavāda*. In the MS of the *Gandhasāra* some tables of aromatic materials are recorded on some folios. I cannot say if these tables form part of the text of the *Gandhasāra* of Gaṅgādhara. I reproduce these tables below as they contain both Sanskrit and vernacular terms :—

Folio 7a —

सूक्ष्मैला	लवंग	चंदन	सौफ	मोथ
तज	कूठ	एलावालुक	जायिफल	चंद्रत्वक्
जायिपत्री	वालाक	कुंकुम	नागकेसर	पुष्प कंकोल
हिरडे	रोहिस	धणिया	लवंगत्वक्	स्थूलैला
पत्रक	नीली	चोरपुष्पी	रेणुक	पद्मक

Folio 9b —

पंचक	कूट	नली	एकांगी	तगर
शैलज	मुरा	मुस्ता	चोरपुष्पी	मांसी
बाल	उशीर	तेजवती	नागकेसर	बोल
कर्चूर	लताकस्तूरी	विहाणी	कर्पुर	प्रियंगु
सौफ	मदन	रोहिस	मरुव	पत्रक

Folio 11a —

मांसी	हिरडे	नागकेशर	गठिवन	स्थैलेला
पत्रक	मुरा	कूट	मुस्ता	वालक
शटी	तज	एकांगी	पद्मक	सिह्ला
शोफ	रेणुक	तगर	लगस	त्विचपत्र
उशीर	विहाग	नख	एलावालु	चंपक

Folio 11b —

प्रियंगु	हरीतकी	शटी	लवंग
शोफ	नागकेसर	उशीर	स्थूलैल
सूक्ष्मेला	मरीचकंकोळ	कूट	जाइपत्री

Folio 12a —

चंदन	जाइपत्री	कंकोल	लवंगत्वक्	जाइफले
पद्मक	कूट	सिह्ला	तर्ज	नख
खदास	मुरा	इंद्रत्वक्	हिरडे	एला
कुंकुम	एलावालुक	लवंग	नागकेसर	अगुरु
गाठिवन	बोल	कर्पूर	शटी	मांसी

Folio 16a —

अगरु	चंदन	देवदारु	सुरभी	सिह्ला	मांसी	मुरा
वालक	कूट	मुस्ता	गल	लता	गुग्गुलु	श्रीवरस
वाल	कुंदुरु	सल्लकी	शैलज	कुंकुम	नागकेसर	हिरडे
गंठीवना	वचा	मरीचकंकोल	जातीकोप	जाइफल	पद्मक	स्थूलैला
तालिस	तमाल	शटी	नख	सूक्ष्मैल	खदास	कर्कट
लवंग	सरेस	दमन	मरुव	अशोक	महासुगंध	चंदत्वक्
	सोफ	गंधमुस्त	प्रियगु	शावत्वक्	एलावालुक	पत्रज

Folio 20b —

कोष्ट १	मुरा ६२	पद्मक १०	सारिवा ४४	मोय ५	हिरडे ५०	चोर २३	पत्रक ४२
लोध १८	केसर ४७	कचूर ४	एकांगी ६३	वाल २२	खजुरको ४३	अगरु ६	लता ५१
उशीर ६१	वर्णेलतो १७	प्रियंगु ६४	तगर ३	एलावालुक ४४	मांसी २६	वले ५२	बोलु ७
सूक्ष्मैला १५	कंकोल ६०	धणिया २६	सौफ २६	श्रीवास ६	कुंदुरु ५६	गुगुलु	साले ४०
गंधमुस्ता २२	जाइपत्री ३५	लवंग १६	चत्रत्वक् ५७	राल २८	नखी २७	नख १०	देवदारु ५२
लंवगत्वक् ५६	जाइफल १४	पुष्पकंकोल ३२	रोहिस ३०	दमन ५५	अशोकी १२॥	मरुवा ३६	वचा २६
बोल ३४	रेणुक ३०	तज ५८	सूक्ष्मैला १३	सरसी ३८	लादी ३७	तमालपत्र ५४	सुरभी ११
तेजवती ६१	नली २	महामोध ४५	चंपक २०	व्याघ्रनखी ४६	शेलर ८	सूल ४१	त्वक्पत्री २१

Folio 27a —

वर्तिः	पद्मा	पर्वत	पुत्री	देवी
गौरी	युक्ता	सज्जन	रक्ता	विद्या
चंद्रा	कांता	भीषण	केशी	चंद्रा
विद्या	प्रोक्ता	वल्लभा	सक्ता	शुद्धा

The foregoing tables with the exception of the last one are perhaps intended to help the actual manufacture of perfumes. They give at a glance the several aromatic ingredients and their suggested combinations. The elaborate table on folio 20b specifies the proportions of these ingredients. It is for the Indian manufacturers of perfumes to understand their exact significance and compare these proportions with those now in practice.

I now close this paper by noting below the names of materials mentioned in the Marathi commentary on the *Gandhavada* .—

Folio 27 —श्रीखंड, अगरु, नख, जायपत्री, मांसी, सैलज, तालीसपत्र, वाल, भोल, पाचि, अंबर, तज, येला, लवंग, कोष्ट, तूप, फुलांचा, वासु, बुका, श्रीगंध ।

Folio 28 —बकुल, मरिफुल्ल, सेवंती, चांबेहलादि, गाठिवना, मरुवा, सेलज, दवना, मर्झी, सेल्हारस, कर्पूर, चांपेकलि, भद्रमुस्ता, पत्रक, पुनाव, हालदि, जाइफल, गेरु, कर्पूर, जटामांसी, बावरी, तगर, ताली, छलिरा, दवणा, चंपा, पुनाव, चंदन, कर्पूर, आंडि, गांठीवना, गहुला, वीये, मुस्ता, अंबर, लोबान, तज, तेलिया, वेरी, बार्वार, कस्तुरी, जवादि।

Folio 29 —"**पुती म्हणता आंडि,**" "**नत म्हणता गांठीवना,**" गहुले, भोलपरी, वालावाळा, पुनावा, "**त्वचा म्हणता छलिरा,**" "**चंडा म्हणता छड,**" "**मुर्ति म्हणता टांक,**" "तृटि म्हणता **येला,**" काचरी, कथाव, नलिका, कचोरी, कृष्णागरु, "**पलास्या म्हणति तेलिया,**" "पुति म्हणता **आंडि,**" तरु, तगरु, भोल, लोबान, देवदारु, पत्रज, गुग्गुळ।

Folio 30 —"**पैतिक म्हणता अगरू,**" तेल्या, "**धूम्र म्हणता लोबान,**" पांव, बकुलपुष्प, पुनाग, छलीरा, एला, वालावाला, बोल, चंदनयेलिया, तवक्षी, कोमं, "**आगुरुपुष्प म्हणता दवना,**" निवेला, तवक्षीर, आंडि, सेवंतिफुल्ल, "**हा बुका सिंघणे**[2] निष्पजविला"।

Folio 31 —दवणा, कोए, वाला, कचूर, भोजसरी, चांपेकलि, "**नत म्हणता तगरु,**" "**गोधा म्हणता गहुले,**" काचरी, "**नाभिकोश म्हणता कस्तुरीचे खोलडे,**" मांकिरसु, रातांजन, जायपल, कंकोल, पिंपलीमूल, पीठवांन, पोइस।

Folio 32 —बजामूर, वेलावाळो, कस्तुरीकोसले, देवदारु, चोपडा, कुंकुमकेसर, महिषीमूत्र, गुग्गुळमृगी, मोचरसु, गोरोचन, कचूकी, केवडे, काथ, मोचरसु, तुप, मधु, "चुना सेर", लोबान, राल, ("हातें रगडिजे"), शुद्धसितारसु, कंदकर्पुर, "**राजांन तांबुलाचा भातु रांधिजे**", "केलिपत्र आधुर्णनि वरि ढालिजे। माउतें केलिपत्रें दडपिजे। दावण बहुत घालिजे"—"उदयभास्कर"।

Folio 33 —गुग्गुळ, चोपडा, मेण राळी स्वेत, सोमलु पीवाला, चूना, फटकी, केतकी दलें, जवादि मस्तकि, जवादिची मांडी, मेणतेल, शुद्धबीज।

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2. "This (*Buka* powder) owes its origin to सिंघण", who is possibly the Yādava king *Singhaṇa* (A.D. 1210-1247). The reference to सिंघण is also found in the text of *Gandhavāda* which reads— —"यो बुका सिंघणे निपायो राजवस्य कह मे हुगवायो." Evidently both the text of the Gandhavāda and its *Marathi Commentary* are *later than* A.D. *1300 or so*.

In the *Rasakautukalika* of Kāyastha Camuṇḍa (A.D. 1475—1509) a physician called भैरवानन्द is said to have administered कल्याणदरस to king सिंहण :-

"सिंहणक्षोणिपालाय भूरिभोज्यप्रिये रसम्।
दत्त्वान् भैरवानन्दो भूयो ग्रामाष्टकं ददौ ॥"

(Vide my paper on the "*Dates of the Works of Kayastha Camuṇḍa*". *Poona Orientalist*, Vol. V, pp. 6-15). Singhaṇa collected many physicians round him. A भिषगग्रणी called माधव composed an inscription for this King—Vide p. 75 of *Sources of Medieval History of Deccan*, Vol. I (1930) by G.H. KHARE.

Folio 34 —सतपत्र, जायल, करवाल, जवदाण, गंधराज, तिलेल, मालतिपुष्प, "**काचकुपिये** ठेविजे," कांचलतेल, शुद्धतैल, शुंठि, गुग्गुलु, धणे, जीरें ।

Folio 35 —भोलश्री, तजनलिक, मरीच, कंकोल, पत्रज, कापूर, ("चोखट बुका होये"), **दारचिनी**, छलिरा, कचूर, चांपेलफुल, भद्रमोथ, चंदनमेन, छली, छिलारसु, जवमापरमे ।

Folio 36 —भोलसरी, आंबेहलदि, लवंगकाडी, कोळं, मोथ, कचाया, वंवर, गुह्यारा, तवक्षिर, चांपा, अखोट, तेल्या, वोलश्री, चंदनपापडा ।

Folio 37 —चंदेनपत्ती, लोबानु, तवक्षिर, करंवाल, जवदाण ।

Folio 38 —हिरडे, लाखभेट, राकाली, गुलु, "**कांवलेनि** गालुनि घेइजे"—"**भोजराज**-कृतवादि," नवनीत खोलडे, **खोबरें** जुनें, मोचरसु, सचघृन, मधु, चूना, कार्लाराल, जवादिसुद्ध, पोथिसराति ।

Folio 39 —"**काचपात्रि** घांरिघे," मेण चोखट, जुनें खोबरें, "सृक् म्हणता **लाख**," चंपेकली ।

Folio 40 —"तोंडी वेलणी झांपणी दीजे ॥ वेलणी सिद्धिः ॥," "**मोहर** वरती कीजे," "लोखंडाची आडणी," "**रानसेणी** तथा **कोलिसे** भरिजे," **काचपात्रि**, सचतूप, धूप, "**म्लक्ष** म्हणता **सिलारस**," "**चोल्या** म्हणता **लोवान**." **पातालयंत्रे** काढिजे, "**अरण्यतुलसी** म्हणता **वावरी**," "**पीतगंध** म्हणता **अगरु**," "उत्थिण म्हणता **लोबानु**"—"कुसुमाकर" ।

Folio 41 —"सिसंक," "**पीत** म्हणा **अगरु**," "**तिलज** म्हणता **तेल**" ।

Folio 42 —सात्राणी, कचुर, हिरडा, सिसंपा, नलिकातज, खदिराचा डिकु, "**मृगीचर्म** म्हणता **खोलडे**" सेल, "**क्रिमिज** म्हणता **लाख**," हलदि, जाईमोगरा, तेल्य ।

Folio 43 —ब्रह्मी, साखर, ववेरी, देवदारु चोपडा, जायिपत्री, सहात, सीसैकाठी, खोलडे, भाजणी, तेल्या, लवंगकाडी, पद्मक, सिरीस, छल्लिरा, सीसामा, चोरडा, नावात, मेणराटी ।

Folio 44 —सहात, धाउतेल, हिरडेदालि, सांत्रायणी, कलीरा, सीप, हरडा, गोंद, पुल, हलदी, "देवदारु सेर दीढु १ ॥," गुलु, साखर, केवडा, चांपेल ।

Folio 45 —चंदनगाभा, "**नालकायंत्रे** अथवा **पातालयंत्रे** चडवावे," देवदारु वोपडा, जाइचें फुल, घृत, भाजणी चोखट, सुरडी जुनि, जङ्गी, नावात, "ब्रह्मी तोले २," "नागकाकिडीचिया रसा" ।

Folio 46 —"**हेम** म्हणता **अगरु**," "**क्रिमिजंतु** म्हणता **लाख**," पत्रज, घलीर ।

Folio 47 —हिंगुल, काख, काथ, त्यतु, खैराचा डीकु, "चणे प्रमाणें वटी कीजे," मोघ ।

Folio 48 —वालीकस्तुरी, धायफुल, येलावालुक, प्रियंगु जायपत्री, रेणुकें, पद्मक, काकडसिंगी, दुरालभा, कमलफुल, **वफते** आणि **कलाख**, मंजीठ, लोध, वासनीखि कस्तुरी, कापूरवाला, केसर, येरंडीमगज, धणियें, करंबालु, जीरा, दवणा, नागकेसर, पाचि ।

The foregoing analyasis of the Marathi commentary reveals in detail the variety of aromatic and other materials that were used in Medieval India for the manufacture of cosmetics and perfumery. Additional points furnished by this analysis are the following :—

(1) Sanskrit and other terms and their equivalents are recordedas follows:-

" हेम म्हणता अगरु ", " किमिर्जंतु म्हणता लाख "

(2) Bhojarāja mentioned on folio 38 in the expression "भोजराजकृतवादि" is evidently King Bhoja of Dhara (*c.* A.D. 1050).

(3) *Siṅghaṇa* referred to on folio 30 as the originator of बुका powder is possibly identical with the Yādava King सिंहण ((A.D. 1210—1247).

(4) It appearsthat glass-vessels were used in connection with the manufacture of perfumery. काचकुपि or glass-bottle is mentioned on folio 34. काचपात्र or a glass-vessel is referred to on folios 39 and 40.

(5) A piece of woolen blanket was used as a strainer (" कांबलेनि गालुनि घेइंजे —" Folio 38).

(6) As regards the पातालयंत्र (Folios 40 and 45) and the नालकायंत्र Folio45)referred to in thecommentary please see plate IV (21 and 22) in the *Short History of Aryan Medical Science*, by Thakore Saheb of Gondal, London, 1896.

(7) There are references to *Cinnamon* as दालचिनी (Folio 35) as दालचिनी (Folio36). *Hobson-Jobson* (By Yule and Burnell, 1903) states that *Darcheenee* is a Persian word meaning *China-stick*. It records usages of *dar-chini*, dated A.D. *1563* and *1621*.

(7)Thereare references to the word " खोबरें " in the commentary (vide Folio 38 —" खोबरें जुनें ") meaning "the dried kernel of the cocoanut" which is called in English *Coprah* (vide *Hobson-Jobson*, pp. 253-254, where we get dated usages of the word like *Copra* (A.D. *1563*, *1578*), *Chopra* (A D. 1584, etc.).

In view of thedata recordedabove I am inclined to fix the date of the *Gandhavāda* and its Marathi commentary between A.D. 1530 and 1550 tentatively. This date is consistent with the reference to King Siṅghaṇa (A.D. 1210-1247) and the oldforms of the Marathi language, not to say the present condition of the MS and its script, I hope that the students of historical linguistics and the students of the history of Perfumery industry of medieval India will fully exploit the rich contents of these new sources for their study viz the (1) *Gandhasāra* of Gaṅgādhara and the (2) *Gandhavāda* with Marathi commentary.

6. Perfumes and Cosmetics in the Royal Bath*

c.A.D. 1130

Owing to early European interest in Indian Philosophy an impression has been created in European countries that ancient Indians were more concerned with the things of the spirit than with things of this mundane world, which contribute to the enjoyment of the pleasures of life. An English writer defined the ideal of happiness in his country as the possession of "a big boiler and a bull's neck." Though ancient Indians regarded spiritual values with utmost veneration and planned their lives on the basis of these values in accordance with a graded course of spiritual development, they gave due attention to the enjoyment of the pleasures of life so called, for which "a big boiler and a bull's neck" are, of course, necessary.

Gāgābhaṭṭa (c. 1650-1675), who presided over the coronation of the Maratha King Shivaji the Great in A.D. 1674, quotes a verse in one of his works defining eight *bhogas* (objects of enjoyment) *viz.*, (1) *Perfumes*, (2) Women, (3) Garments, (4) Music, (5) Betel, (6) Dinners, (7) Bed and (8) *Flowers*. With the exception of betel, *i.e.*, the areca-nut with betel-leaf, etc., chewed in India, Indonesia, Indo-China, etc., all other items in this list of eight objects of enjoyment are recognised pleasures of life of the normal variety all over the world.

Students of the history of Perfumes and Cosmetics in India and outside will find in the above list of *bhogas* the mention of *Perfumes* and *Flowers* as legitimate objects of enjoyment. Accordingly a royal author Someśvara of the 12th Century, who composed an encyclopaedic Sanskrit work called the Mānasollāsa[1] (*c.*A.D. 1130) devotes many chapters to the description of the enjoyment of the different *bhogas* or objects of enjoyment. Among these chapters we find four chapters which are concerned with Perfumes and Cosmetics to be used by the King.

In India the importance of daily bath for persons of all classes has been emphasised by Hindu religion. Indian medical texts contain detailed instructions about the daily bath both for bodily comfort and cleanliness. Accordingly King Someśvara lays down detailed instructions about the

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**The International Perfumer*, Vol. II, No. 8, pp. 111-113.

1. Only Vols. I and II of *Mānasollāsa* have been published in the *Gaekwad Oriental Series*, Baroda. I am concerned in this paper with Vol. II (published in 1939), pp. 81-87.

royal bath in his work, *viz.*, the *Mānasollāsa* (Vol. II, pp. 81-83). A brief summary of these instructions with special reference to the perfumes and cosmetics used for the royal bath may be recorded here :—

The apartment for the royal bath should be in the north-east quarter of the palace. Its ceiling, pillars and walls should be beautifully decorated with variegated colours. The king should take his bath in this apartment Athletes (*mallas*) well versed in the art of massaging should massage the king's person freely with the tender palms of their hands by the use of fragrant and medicinal oil, which should be applied to the king's person by young female attendants with their tender palms of hands having nails shining like the interior of a *Ketaki* bud and having the capacity to produce a feeling of ecstacy in the king's mind. The perfumed oil used for massage should be prepared as follows :—

Take a quantity of the seeds of Sesame (*tila*) and perfume it with the strong odour of the flowers of *Ketaki* (Pandanus odoratissimus), *jāti* (Jasminum grandiflorum), *punnāga* (Calophyllum inophyllum) and *Champaka*' (Michelia champaca). The seeds so perfumed should be crushed in a crusher (*yantra*) and the oil extracted from them. This oil is rich in perfume of the particular flowers used in the process. After massaging the king's person with perfumed oil of the above type an unguent should be applied to it. The method of preparing this unguent is as follows :—

Collect the roots of the following herbs :—

(1) *Pālaka* (Spinach ?)
(2) *Tagara* (Valerianna Wallichii ?)
(3) *Māṁsī* (Musk-root or Indian Spikenard)
(4) *Vājigandha* (Winter Cherry)=Aśvagandha.
(5) *Puṣkara* (Lotus or a kind of Costus)
(6) *Koṣṭha* (= Kuṣṭha = Costus)
(7) *Paṭolaka* (Snakegourd)
(8) *Mustā* (Nut-grass or Cyperus Rotundus)
(9) *Niśā-dvayam* (two kinds of *Niśā viz.*, (i) Turmeric and (ii) Tree-turmeric or Indian barberry)
(10) *Granthi-parṇa* (Artemesia Vulgaris)

All these roots should be dried up in shade and then blended together (by reducing them to powder). To this mixture snould be added a paste made of the leaves of trees mentioned below :—

(1) *Nimba* (Neem or Margosa tree)
(2) *Rājavṛkṣa* (Cassia Fistula or Indian Laburnum)
(3) *Tulasī* (Holy Basil)
(4) *Arjaka* (Sweet Basil, *Ocimum Basilicum*)

To the above mixture add the pounded seeds of the following : —

(1) *Elā* (Cardamom)
(2) *Jāti* (Jasmine)
(3) *Sarṣapa* (Mustard)
(4) *Tila* (Sesame)
(5) *Kustumbara* (Coriander)
(6) *Bākuci* (Veronia anthelmintica)
(7) *Cakramarda* (Cassia Tora)

To this mixture add the powder of the following weeds:—

(1) *Lavaṅga* (Clove)
(2) *Padmaka* (Prunus padum)
(3) *Lodhra* (Symplocos Racemosa)
(4) *Śrīkhaṇḍa* (Sandal)
(5) *Suradāru* (Fir tree)
(6) *Agaru* (Agallochum)
(7) *Sarala* (Long-leaved pine)

Flowers of the following plants should be thrown duly blended into the mixtures specified above :—

(1) *Nāgakeśara* (Mesua ferrea)
(2) *Punnāga* (Calophyllum inophyllum)
(3) *Kānta* (Aglaia Roxburghiana)
(4) *Kuṅkuma* (Saffron)
(5) *Campaka* (Michelia Champaca)

Lastly the following materials should be pounded in water or rice-vinegar (*Kāñjika*) and added to the above unguent :—

(1) *Guggulu* (Bdellium)
(2) *Saindhava* (Rock-salt)
(3) *Bola* (Myrrah)
(4) *Sarjarasa* (Yellow resin)

The person of the king should be rubbed and cleaned with the application of the above unguents prepared from many aromatic and medicinal ingredients.

For removing the grease from the king's person a *Cake* (*Khali*) should be used. The composition of this cake or soap should be as follows :—

Take a quantity of very fine wheat flour. Mix it with fermented rice-gruel (*aranāla*) and powdered roots of *madana* (Emetic Nut, *Randia dumetorum*) and *piśuna* (Saffron).

The king should then take his bath with the help of beautiful female attendants. The water used for the bath should contain clean waters brought from different holy places and capable of removing dirt. It should be agreeably warm and delightful to the touch. Such water duly perfumed should be kept in vessels of iron. The ladies in attendance should fill this water in shining pitchers of gold and silver and pour it on the king's person with their faces towards the king. An unguent made of the perfumed pulp of the fruits of *amalaka* (*Emblic Myrobalan*) should be applied by these ladies to the hair of the king, which should be later washed clean with agreeably warm holy waters from holy places in different parts of India. Scented turmeric (*haridra*) pulp should then be applied to the king's person by these ladies, who should wash it clean with slightly cool water and then dry it up. The king should then remove the wet garment from his body and wear a clean white garment. Thus comes to an end the elaborate process of the *royal bath*.

7. Studies in the History of Indian Cosmetics and Perfumery — The campaka oil and its Manufacture* (Between A.D. 500 and 1850)

Recently I discovered two rare MSS of two treatises on *Gandha-sutra* (Cosmetics and Perfumery) called (1) the *Gandhasāra* of Gaṅgādhara and (2) *Gandhavāda* with Marathi commentary. I have prepared two papers on those MSS, giving their critical analysis, which shows that these treatises were composed sometime between A.D. 1300 and 1600. We can definitely assign the *Gandhavāda* and its Marathi commentary to the period—A.D. 1300-1550 but the chronology of the *Gandhasāra* of Gaṅgādhara cannot be definitely assigned to any period, though its contents are analogous to those of the *Gandhavāda*. Unfortunately none of these treatises quotes any works or their authors. I have reason to believe that these treatises are based on earlier treatises on *Gandha-śāstra* as I have observed in my two papers under reference.

For an accurate history of Indian Cosmetics and Perfumery we must study the references to these preparations separately and reconstruct the history of each preparation from the technical and non-technical literature. I shall illustrate this method by recording in this paper some evidence about the antiquity of the fragrant oil and other preparations in which the Campaka[1] flower and its perfume were made use of by our ancestors. Such a study will possess both historical and cultural importance especially with reference to the refined taste of those who manufactured these preparationsfor the use of cultured ladies and gentlemen of antiquity.

The use of fragrant oil is referred to in the following *Subhasitas*[2]

Bhāratīya Vidyā, Vol. VI, pp. 149-156.

1. Vide p. 7 of *Flowering Plants of Western India* by A. K. Nairne, London, 1894.—*Michelia Champaca*—A fine tree with long, oval pointed, waved leaves, shining above; sepals and petals 15 to 20, flowers yellow, rosy, fragrant; carpels roundish, oval sessile, many together at the end of aswollenstalk. *PilaChampaka, Champaka*.

Commonly cultivated. The flowers are used by women to ornament their hair, and are offered in temples.

"The *champak* odours fail

Like sweet thoughts in a dream"—*Shelley*.

"The pale yellow flowers have the sweet oppressive perfume which is celebrated in the poetry of the Hindus. From the wood of the champak the images of Buddhaare carvedfor the temples—*Tennant's Ceylon*."

2. Vide p. 270 of *Subhāṣitaratnabhaṇḍāgara*, N. S. Press, Bombay, 1911.

with the practice of *abhyaṅga* (i.e., smearing the body with oil or unguent) adopted by Indian ladies :—

"अस्याः पीठोपविष्टाया अभ्यङ्गे विनतोत्पले ।
लसच्छ्रोणि चलद्दोष्णि नम्रद्गुरुपयोधरम् ॥२७॥
आवार्य स्फुटं सिचयेन सम्यगाबद्ध्य वक्षोरुहकुम्भयुग्मम् ।
दासी करात्तभ्रितैलपात्रा मन्दं समासीददिति सुन्दरीं ताम् ॥ २८ ॥
वक्षोजौ निबिडं निबद्ध्य सिचयेनाकुञ्च्य मध्यं शनैः
कृत्वा चम्पकतैलसेकमबला संपीड्य मन्दं शिरः ।
पाणिभ्यां चलकङ्कणोत्थतभ्रमत्कारोत्तराभ्यां करो –
त्यभ्यङ्गं परिपश्यतः सकुतुकं दोरन्तरं प्रेयसः ॥ २९ ॥"

Here we find the use of *Campaka oil* by ladies in their *abhyaṅga*. Sanskrit anthologies[3] contain many *anyoktis* on the *Campaka* tree and its fragrant flower, which show the popularity of the flower in the ancient Indian plant lore. This flower had lent its aroma to Indian life and literature through centuries.[4]

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3. Ibid. pp. 249-250—Verses 64-71. The *Padyaveṇī* of Veṇīdatta, composed in A.D. 1644 contains 2 verses on *Campaka* (Verse 668 by Rudra and 669 by Bindu Kavi)—Pages 190-191 of the Edition of the *Padyaveṇī* by J. B. Chaudhuri, 1944, Calcutta (*Prācyavāṇī Sanskrit Series*, Vol. I).

4. In the description of गन्धमादन forest described in the *Āraṇyakaparvan* of the *Mahābhārata* (Critical Edition, B. O. R. Institute, 3. 155. 44) we find a reference to *Campaka* trees.—

"तथैव चम्पकाशोकान् केतकान् बकुलांस्तथा ॥ ४४ ॥"

Other trees mentioned in this description are :—

आम्र, आम्रातक, नारिकेल, तिन्दुक, अजातक, जीर, दाडिम, बीजपूर, पनस, लिकुच, मोच, खर्जूर, आम्रवेतस, पारावत, क्षौद्र, नीप, बिल्व, कपित्थ, जम्बू, काश्मरी, बदरी, प्लक्ष, उदुम्बर, वट, अश्वत्थ, भल्लातक, आमलक, हरीतक, बिभीतक, इङ्गुद, करवीर, अशोक, केतक, बकुल, पुंनाग, सप्तपर्ण, कर्णिकार, पाटल, कुटज, मन्दार, इन्दीवर, पारिजात, कोविदार, देवदारु, शाल, ताल, तमाल, प्रियाल, शाल्मली, किंशुक, शिंशपा, तरल, कुमुद, पुण्डरीक, कोकनदोत्पल, कल्हार, कमल, तिलक, सहकार (and its मञ्जरी).

The description also contains names of beasts and birds of this forest such as गज, सिंह, व्याघ्र and शिखण्डिन्, कोकिल, शारिका, चकोर, राजहंस, सारस, etc. Mineral products are also mentioned : हरिताल, हिङ्गुलक, मनःशिला, etc.

Regarding the antiquity of some of the plants mentioned in the *Mahābhārata* reference is invited to the article on *Vedic Plants* by Dr. G. P. Majumdar in *B. C. Law Volume* Part I, pp. 645-668. Plants have proved friends of men from the remotest antiquity and Dr. Majumdar's studies of Indian plants are bound to enhance our respect for these friends when we know their historical and cultural perspective.

The *Gandhasāra* of Gaṅgādhara contains the following references to *Campaka* :—

Folio 5 (B. O. R. Institute MS)—

"चंपकगंधसमानो मिलितै रेभिर्भवेद्गंधः ।
भ्रमरस्यैको भागो द्वौ भागौ चैव कान्तायाः ॥ ६ ॥"

Folio 8 —"जघनरेणुकांता शुगदनतपत्रादनुजन्याभिः ॥
भूतयुनाभीरोद्रे पक्वं तैलं तु चंपकामोदं ॥ २३ ॥
* मंजिष्ठया व्याघ्रनखेण शुक्तया—
स्वकासकुष्टेन रसेन चूर्ण— ।
तैलेन युक्तोर्कमयूखतस्त :
करोति तच्चंपकगंधतैलं ॥ २४ ॥"

Folio 10 —* "त्वक्कुष्टरेणुनालिकास्पृक्कारसतगरवालकैस्तुल्यै ।
केसरपत्रविमिश्रैर्नरपतियोग्यं शिरस्नानं ॥
घनोत्पलदलं चोरसूक्ष्मैलानखमिश्रितं ।
चंपकामोदगंधश्च स्नानमात्रान्न संशयः ॥

Folio 18 —"चंपककुसुमं विमृष्टं राशौ धान्यस्य संद्रवति ।
टंकणसैंधवयवजैः केतकेण च शंखचूर्णयुकेन ॥"

Folio 20 —"यति पमराजल कमलजजगुरुलता तेजिनी नली गोपाः ।
चंपकपुत्रीशेखर गिरिलद्मीनलदसुतफलीतगराः ॥ ३६ ॥"

Folio 22 —"चंपक कांचनोरम्यो दीर्घश्च सुकुमारकः ।
भृंगातिथिः स्वर्णपुष्पः कठिनश्च ॥ चंपकः ॥"

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* The *Bṛhatsaṁhita* of Varāhamihira contains a chapter (No. 77) on *Gandhayukti* (37 Verses)—pp. 386-389 of the Calcutta (1865) Edition. Verses 5 and 6 of this chapter read as follows :—

"त्वक्कुष्ठरेणुनलिका—
स्पृक्कारसतगरवालकैस्तुल्यैः ।
केसरपत्रविमिश्रै—
र्नरपतियोग्यं शिरःस्नानम् ॥ ५ ॥
मञ्जिष्ठया व्याघ्रनखेन शुक्त्या
त्वचा सकुष्ठेन रसेन चूर्णः ।
तैलेन युक्तोऽर्कमयूखतप्तः
करोति तच्चम्पकगन्धितैलम् ॥ ६ ॥"

Evidently *Gandhasāra* has borrowed these verses from the *Bṛhatsaṁhita* without mention. The author of the *Gandhasāra* bows to his predecessors (गंधागमज्ञान्, i.e. experts in गंधागम) in verse 3 at the beginning of his work :—

"गंधागमज्ञांश्च मितैर्वचोभिर्वंदये ससारं शुभगंधसारं "

The *Gandhavada* contains the following references to *Campaka* :—

Folio 28 —"दवणा मद ब्रह्मी च सेलारसूयकृत्तनुः।
कर्नुः चंपककलिका पृथक्द्विदशभागिकं ॥"
(Comm. " चांपेकलि पलें १२ ॥ ")
"चंपकं द्विदशावर्तद्विद्विपुन्नागपत्रजा"
(Comm. " चंपा भाग २ ॥ ")

Folio 29 —"शोलभीजलदं उशीरकलिकाचंपापुनात्वना "
(Comm. " चांपा पल १, पुनाग पल १ ")

Folio 30-31 —"लवंगचंपानवनवदीजे वक्रगालितफुलाचावासु ॥ राजपुरुषको करोविलासु"
(Comm. "चापा टांक ६ ")
"मुस्तागरुचंपकमाक्तं "
(Comm. "चांपेकलि पल .॥. ")

Folio 35 —"चंपाफुल टांक १ ", " चांपेकली सेर .।."

Folio 36 —"चांपफुल सेर ३ ", " चांपेकली टांक ६ "
"चांपा सेर .।.", " चांपा टांक ६", " चांपा टांक ३ "

Folio 37 —"चांपा टांक ४ ", " चांपा टांक ६ "—" इति सुगंधतेलं "

Folio 39 —"चांपेकली पल १ "

Folio 41 —"पलं चत्वारी चांपेलतैल काष्ठं वसुपलं "
(Comm. " चांपेल पल ४ ")

Folio 43 —"चांपा सेर .॥.", "चांपेल सेर .॥."

Folio 45 —"चांपेल चोख्ट सेर .॥.", "मेणुसाठी टांक १ चांपेलातु घालिजे",
"चांपेल टांक १२ ", " चांपेकली सेर .।."

Folio 48 —"चांपेफुल सेर १२ "

It appears from the above references that the *Campaka* exercised a dominating influence on the manufacture of cosmetics and perfumery in several formssuch as perfumed oils, powders, incense etc. Accordingly we find in the two treatises on *Gandha-Śastra* the following materials used in this manufacture :—

(1) चंपककलिका— Flower buds of *Campaka* used in certain proportions. These are called चांपेकलि in Marathi.

(2) चंपककुसुम (चंपाफुल or चांपे फुल in Marathi). These are full-blown *Campaka* flowers as contrasted with the buds.

(3) चंपकगंधितैल or चांपेल तैल (चांपेल in Marathi). This was oil of *Campaka*. It was mixed up with other ingredients for the manufacture of scented powdersetc.

The two verses in the *Gandhasāra* of Gaṅgādhara viz. (1) "मंजिष्ठया व्याघ्रनखेन etc." and (2) त्वक्कुष्ठरेणुनालिका" are found in the *Bṛhatsaṁhitā* of Varāhamihira in the chapter dealing with *Gandhayukti*[5] or preparation of perfumes. The Campaka oil (चंपक.गंधितैल) mentioned by Varāhamihira (c. 500 A.D.) had evidently an earlier tradition. We may, therefore, safely say that the Campaka oil has a clear antiquity of 1500 years. Its popularity has continued unabated to the present day. We must trace references to the *Campaka* preparations before A.D. 500 and determine the exact period of the history of Indian perfumery in which they became current in India.

In his chapter[6] on *Odes to Plants (Vṛkṣānyokti.)* based on the *Subhāṣitas* in Sanskrkit anthologies Dr. G. P. Majumdar has culled out the following information about the *Campaka* plant :—

'*Campaka* — six odes[7] have been devoted to this plant, whose flowers are noted for their beautiful colour and fragrance.

It flourishes in a bad locality, full of sands. The poet wonders how it could be so fragrant ! When planted in a village[8] garden, the gardener does nor water it when watering is needed and supplies it with plenty of water out of season. When, however, it blossoms it emits sweet fragrance, whichbought to put the gardener to shame.

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5. I note here the names of some of the aromatic ingredients mentioned in the *Bṛhatsaṁhitā* (c. A.D. 500) in the *Gandhayukti* :—

"पत्र तुरुष्कवालतगरैः", बकुल, चम्पक, जाती, त्वक्, अतिमुक्तक, कुस्तुम्बुरु, शतपुष्पा, कुन्दुरुक, नख, प्रियङ्गु, गुडनख, गुग्गुलु, वालक, लाक्षा, मुस्ता, मांसी, चन्दन, हरीतकी, शङ्खघनद्रव, शैलक, श्रीसर्ज, उशीर, सूक्ष्मैला, "मृगकर्पूर", कर्पूर, व्याघ्रनख, स्पृक्का, अगुरु, दमनक, तगर, चोर, मलय, कस्तूरिका, शैलेय, जाती, सर्जरस, श्रीवासक, रोध्र, हिङ्गुल, केसर, एला, मरिच, जातीफल, ताम्बूल, पूगफल, कक्कोल, लवलीफल.

Almost all of these ingredients are mentioned in the *Gandhasāra* and the *Gandhavāda*.

6. Vide pp. 409-428 of "*Some Aspects of Indian Civilization*" by G. P. Majumdar, Calcutta, 1938.

7. Vide *Sarṅgadharapaddhati* (stanzas 1002-1003). *Saduktikarṇāmṛta*, 58, 2, p. 267; *Subhāṣitaratnākara* (stanzas 1-5), pp. 245-246 ; *Subhāṣitāvali* (stanza 801).

8. Francis Buchanan in his *Patna-Gaya Report* (Behar and Orissa Res. Society) gives an account of Biharand Patna in A.D. 1811-12. In his chapter on "*Natural Productions : Plants*" heobserveson pp. 432-433 :—

"The *Campa* of the Bhagalpur list (No. 80) is here known by the same name ; nor is it common. One of the timbers in most request with the cabinet makers in Patna is called *changp*and they say that this name is different from that of the tree of which I am now treating; but the timber comes from Nepal and I know that there the timber of some spontaneous kinds of *Michelia* is in great request for the same purposes. The *Michelia Champaka* is everywhere in Indiaan exotic and is only to be found plantedabout villages."

Its sweet fragrance betrays it even when it flourishes in a Khadira forest; and when it blossoms in a dry region the poet is sorry that it cannot kiss the cheeks of beautiful women there which it is always accustomed todo. Its existence there is altogether usless."

The above information, however, does not refer to the use of the *Campaka* flower in the manufacture of cosmetics and perfumery.

As a means of economic production the *Campaka* has been mentioned by the *Bṛhatsaṁhitā* (chapter 29)[9]. One can infer "Gold from the flowers of the *Campaka* (Michelia *Champaka*)" says the *Bṛhatsaṁhitā*[10].

The *Amarakośa*[11] refers to the *Campaka* as *Cāmpeya* as follows :—

" चाम्पेयश्चम्पको हेमपुष्पकः । एतस्य कलिका गन्धफली स्यात् "

Kṣīrasvāmin explains :—

"चम्पादेशे भवः चाम्पेयः । चम्पुतवते अलिभिः चम्पकः चम्पकोऽपि । आह च— चम्पकः सुकुमारश्च सुरभिः शीतलश्च सः । चाम्पेयो हेमपुष्पश्च काञ्चनः षट्पदातिथिः (ध. ५।१४२) ॥ गन्धः फलमस्या गन्धफली । प्रियङ्गु चम्पककलिका चेति द्वयर्थे गन्धफली (अ. द. २।७१) ।"

The references to the *Campaka* in the *Amarakośa* corroborate those in the *Bṛhatsaṁhitā* (c. 500 A.D.). The name गन्धफली for the चम्पककलिका mentioned by Amara is also significant. We have already pointed out that the two treatises on *Gandha-Śāstra* (*Gandhasāra* and *Gandhavāda*) prescribe the use of चम्पककलिका (or चांपेकली) frequently in the manufacture of cosmetics and perfumery. If चम्पककलिका had assumed the name "गन्धफली" at the time of the *Amarakośa* (c. A.D. 500) we may infer that it may have been used in the preparation of perfumes even before the time of the *Amarakośa*. At any rate the *Campaka* flowers and the *Campaka* buds were aromatic ingredients of established reputation 1500 years ago, if not more.

The *Varāṅga Carita*[12] of Jaṭāsiṁhanandi, a Jain Sanskrit poem of the

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9. Dr. G. P. Majumdar has translated this chapter in his *Vanaspati*, Calcutta, 1927, pp 130-34.

10. Ibid. p. 132. On p. 75 Dr. Majumdar refers to *Champeya* as follows :—"*Champeya* (Michelia sp.) indigenous of Champa-Bhagalpur."

11. Vide pp. 96-97 of *Amarakosa* ed. by Dr. H D. Sharma and Dr. N. G. Sardesai, Poona, 1941.

12. Vide p. 227 of *Varaṅga Carita* ed. by Dr. A. N. Upadhye, Bombay, 1938. I note some references to perfumed products and ingredients from this poem :—

P. 7—"कालागरुपत्रधूपवहाश्च गेहाः"; P. 23—"गन्धविमिश्रतोयैः"; P. 4—"पिषन्ति गन्धवत्";

7th Century A.D.. refers to the perfume of *Campaka* and the garlands of *Campaka* flowers as follows :—

" गन्धार्चनैश्चम्पकनागगन्धान् मूर्त्या स्वगन्धैरतिशेरते तान् ।
धूपप्रदानैः कुलकेतवः स्युस्तेजस्विनः स्युर्वरदीपदानैः ॥ ७८ ॥"

Page 60 — " तुरुष्ककालागरुचन्दनानां लवङ्गकक्कोलककुङ्कुमानाम् ।
एलातमालोत्पलचम्पकानां गन्धान्स्वगन्धैश्च विशेषयन्ति ॥ ६ ॥"

Page 61 — " सुगन्धिसच्चम्पकमालतीनां पुन्नागजात्युत्पलकेतकीनाम् ।
पञ्चप्रकारा रचिताग्रमाला माल्याङ्गवृत्त्या विसृजन्त्यजस्रम् ॥ २२ ॥"

Page 219 — " प्रियङ्ग्वशोकद्रुमकर्णिकारः पुन्नागनागाशनचम्पकानाम् ।
वाप्यो विरेजुः सविहारयोग्या बहिःप्रदेशे भुवनोत्तमस्य ॥ ६१ ॥"

In the *Karandavyuha* (Calcutta Edition), an early Sanskrit Buddhist text, the *Campaka* flower is included under काष्ठपुष्पाणि (p. 8) of the *Jetavana*. Campaka trees (चम्पकवृक्षाः) are also mentioned (pp. 17-53).

Bāṇa in his *Kadambari* (B. S. Series—*Uttarabhaga*) refers to garlands made of Campaka petals (p. 253—चम्पकदलमालिका) and *Campaka* trees (p. 256).

The *Manasollasa* of Someśvara (c. A. D. 1130) refers to the *Campaka* oil in the following verse (p. 81 of Vol. II of मानसोल्लास G. O. S., Baroda, 1939) :—

" पुन्नागचम्पकोद्दामगन्धसंवासितैः तिलैः ।
यन्त्रसम्पीडितैस्तैलं गृहीत्वाऽभ्यङ्गमाचरेत् ॥"

This verse is important as it tells us how the *Campaka* oil was prepared. Seeds of *Tila* (sesame) were perfumed with Campaka flowers and then pressed. The oil so produced was used for *abhyanga*.

Buchanan in his *Patna-Gaya Report* (A.D. 1811-12), Vol. II, pp. 633-34,

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P. 49—"आर्द्रचन्दनकल्कानि"; P. 60—"तृणानि...सौगन्धिकगन्धवंति"; P. 67—"गोशीर्षवृक्षस्तरुषु प्रधानः"; P. 70—गन्धान्सुगन्धीकुसुमस्रजश्च"; P. 92—"पुष्पाणि तांबूलविलेपनादि"; P. 96—"ताम्बूलधूपाञ्जनभेषजेषु"; P. 97—"धूपाञ्जनैर्मन्त्रपवित्रभूतैः"; P. 101—"कर्पूरकवासिताम्भः"; P. 123—"चन्दनवारिभिः"; P. 130—"चन्दनोदक"; P. 131—"गोशीर्षचन्दन"; P. 154—'ताम्बूलवस्त्रोत्तमभूषणानि'; P. 219—"क्रमुकाः"; "बन्धूकगन्धोत्कटमल्लिकानाम्" "लवङ्गकक्कोल-फलानालिकेराः", "ताम्बूलवल्ल्यः"; P. 223—"गोशीर्ष", "धूप", "वासचूर्ण", P. 224—"चन्दनतोयगन्ध";, P. 225—"गन्धोदक", "तुरुष्क'; P. 226—"गन्धपङ्क"; P. 229—"चूर्णवास", "लाक्षारस"; P. 274—"तुरुष्ककालागरु"; P. 282—"ताम्बूलधूपाञ्जनगंध"

describes the preparation of *Chambeli* oil from Chambeli flower (*Jasminum Grandiflorum* w.) as follows :—

"At the beginning of the flowering season they take 82 seers (about 169 lbs.) of the seed of sesamum (Til) and every fair day during the season add to one half of it as many flowers as they can collect... ...The seed is then squeezed in a common oil mill etc."

It will be seen from the description of the preparation of the Chambeli oil in A.D. 1811-12 that the process of preparing it is identical with that for the *Campaka oil* current in A D.1130.

The *Mānasollāsa* in its section on flower-garlands to be worn by the king mentions the *Campaka*[13] flowers used in the preparation of garlands as follows :—

P. 9. — (मानसोल्लास)—

" चम्पकं मल्लिकायुक्तं चम्पकान्युत्पलैः सह ॥ ४२ ॥
चम्पकं सुरभीयुक्तं चम्पकं पाटलान्वितम् । "

For blending the perfumes of the *Campaka* flowers they were combined with other flowers for preparing the garlands.

The *Rājavyavahārakośa* of Raghunātha Paṇḍita prepared by the order of Shivaji the Great between A.D. *1650 and 1674* refers to the *Campaka oil* in the भोग्यवर्ग as follows :—

" मल्लीतैलं मोरेलं चमेलीजातितैलकम् ।
तथा चंपकतैलं चांपेलमिति कीर्तितम् ॥ १५ ॥"

The *Suśruta Saṁhitā*[14] (Sūtrasthāna, chap. 46, पुष्पवर्ग) gives the properties of the *Campaka* as follows :—

" चम्पकं रक्तपित्तघ्नं शीतोष्णं कफनाशनम् "

In the Appendix to *Aṣṭāṅgasaṁgraha* (Sūtrasthāna) edited by Pt. R. D. Kinjavadekar (Poona, 1940), some texts bearing on स्वस्थवृत्त are

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13. In the Word-Index to the *Arthaśāstra* of Kauṭilya there is no reference to चम्पक but in the Word-Index to Patañjali's *Vyākaraṇa Mahābhāṣya* (c. 150 B.C.) "चम्पकपुट" is mentioned as follows :—

II, I. 1 (p. 364 of Kielhorn's Edition, Bombay, 1880)

"यथा तर्हि मल्लिकापुटः चम्पकपुटः इति निष्क्रीतेष्वपि सुमनःसु अन्वयाद्विशेषणं भवति अयं मल्लिकापुटः अयं चम्पकपुटः इति " These are references to चम्पक and मल्लिका flowers.

14. Vide p. 456 of Text with Marathi translation by Krishna Shastri Phadke Bombay, 1921 (Vol. 1) — *Sūtrasthāna*.

recorded. In these texts there are references to the *Campaka* flowers :—

P. 181—(पुष्पादिधारणम्)

" पाटलं च वृहत्पुष्पं बकुलं **चम्पकं** तथा ।
श्रीखंड चैव गोलालं कस्तूर्या सह धारयेत् ॥ ३४ ॥"
" गोलालं **चम्पकं** पुष्पं वातश्लेष्महरपरम् "
" **चम्पकं** वातशमनं चक्षुष्यं विशदं शुभम् "
" प्रावृट्सु पाटलं धार्ये **चम्पकं** शरदि स्मृतम् "

P. 191—(गृहादिनिर्माणविधिः). The *Campaka* tree is to be planted to the South-east quarter of the house :—

" आग्नेय्यां दिशि गृहतोऽपि **चम्पकं** वै"

Thakore Saheb of Gondal[15] states Indian medical works recommend the use of twigs of several plants for cleansing the teeth. Wonderful properties are ascribed to these twigs. A tooth-brush made of *Campaka* twig (*Michelia Champaka*) improves the organs of speech and hearing.

The foregoing evidence about the antiquity of the *Campaka* tree and its flower as used in the preparation of the *Campaka oil* famous in Indian cosmetics and perfumery is by no means complete. I record below in a tabular form the chronology of the evidence as gathered by me from Sanskrit and other sources, technical and non-technical :—

Chronology	*Reference*
c. 150 B.C.	— Patañjali refers to चम्पक and मल्लिका flowers (II. 1. 1, महाभाष्य)
	Mahābhārata (Āraṇyaka parvan) mentions चम्पक trees growing in the गन्धमादन forest.
	Suśruta Saṁhitā mentions the properties of the *Campaka* flower.
	Kāraṇḍavyūha mentions *Campaka* trees and their flowers.
c. A.D. 500	— Varāhamihira in his *Bṛhatsaṁhitā* refers to 'चम्पकगंधितैल'' and "चंपकामोदगंध"
c. 500-800	— *Amarakośa* refers to चम्पक and its bud called "गन्धफली"
c. A.D. 630	— Bāṇa in his *Kādambarī* refers to *Campaka* trees and "चम्पकदलमालिका"

15. Vide p. 59 of *Aryan Medical Science*, London, 1896.

Chronology	*Reference*
7th Century A.D.	—*Varanga Carita* of Jaṭāsiṁhanandi contains numerous references to the *Campaka* trees, flowers and perfumes.
c. A.D. 1130	— *Mānasollāsa* of Someśvara prescribes the use of *Campaka* oil for *abhyaṅga* and also states the mode of its preparation.
c. 1290 A.D.	— *Jñāneśvarī*, Chap. XVIII, 853—"ना ना चांपा चापोळीपूजिला" " (चांपा—चंपक and चांपोली—चंपककलिका)
c. 1300-1600 A.D.	— *Gandhasāra* of Gaṅgādhara and *Gandhavāda* with Marathi commentary describe in detail the method of preparing चम्पकतेल and using it for several articles of perfumery. चम्पक कलिका and चम्पक flower were made use of in the manufacture of oils, powders etc.
A.D. 1650-1674	— *Rājavyavahārakośa* of Raghunātha Paṇḍita mentions चंपकतेल (or चांपेल) along with other fragrant oils such as मोगरेल, चमेलीतेल etc.
A.D. 1626-1678	— Veṇābāi in her सीतास्वयंवर (8. 7):—"फुलेलें चाफेलें घेउनी" (चाफेल = चापेल)
A.D. 1811-12	— Francis Buchanan in his *Patna-Gaya Report* and *Bhagalpur Report* describes *Champa* or *Michelia Champaka* in his list of Plants. He also describes the process of preparing *Chambeli* oil, which is exactly the same as mentioned in the *Mānasollāsa* (A.D. 1130) for the preparation of चम्पक तेल — चापेल तेल is referred to in women's songs :— " घाटिली हळद चांगली । चापेल तेलें मोहिली" (स्त्रीगीत १४—स्त्रीगीतमाला by G. M. Kurlekar, Bombay, 1882)

The *Upaniṣadvākyamahākośa* (by G. S. Sadhale, Bombay, 1940) *Pūrvārdha*, p. 180 quotes a sentence from गायत्रीरहस्योपनिषद् containing a reference to *Campaka* :—

"चम्पकातसी कुंकुमपिङ्गलेन्द्रनील......घनसारसंनिभं गायत्र्या: प्रत्यक्षरमनुस्मृत्य etc."

As the date of this *Upaniṣad* has not been fixed up this reference to *Campaka* renders no chronological help in our present study.

Brewer in his *Dictionary of Phrase and Fable* records the following note on *Campaka* :—

P. 236—"*Champak*—An Indian tree (*Michelia Champaca*). The wood is sacred to Buddha and the strongly scented golden flowers are worn in the black hair of Indian women."

"The *Champak* odours fail"

—*Shelley* : *Lines to Indian Air*.

I hope the foregoing study of the antiquity of the *Champaka* tree referred to in the *Mahābhārata* and subsequent literature will be helpful to all students of ancient Indian plant lore and allied subjects. The antiquity of the *Campaka* tree prior to c. 500 B.C. needs to be established. The Word-Index to the *Atharvaveda* (by Vishvesvarananda and Nityananda, 1908) does not mention *Campaka*. In Dr. Majumdar's list of Vedic Plants in *B. C. Law Volume*, Part I, the *Campaka* is not mentioned.

The *Sanskrit-Worterbūch* by Böhtlingk and Roth (St. Petersburg, 1858) records references to *Campaka* flower and tree from the *Amarakośa*, *Trikāṇḍaśeṣa*, Hemacandra's *Abhidhāna—Cintāmaṇi*, *Mahābhārata*, *Rāmāyaṇa* (1, 17, 35 ; 3, 17, 11), *Suśruta*, *Bhāgavata*, *Lalitavistara*, *Caurapañcāśikā*, *Bṛhatsaṁhitā*, *Rājataraṅgiṇi*, and *Hitopadeśa*,

The *Sabdakalpadruma* records the following verses about चम्पक चतुर्दशी when God Śiva is to be worshipped with Campaka flowers :—

उत्तरकामाख्यतन्त्र **(11th Paṭala)**—

"चतुर्दश्यां च शुक्लायां ज्यैष्ठे मासि महेश्वरम् ।
चम्पकैः पूजयेद्भक्त्या शिवलोकमवाप्नुयात् ॥"

8. Verses pertaining to Gandhayukti in the *Agnipurāna* (9th Century A.D.) and their relation to the topics dealt with in Gangādhara's *Gandhasāra*,

Between A. D. 1300 and 1600.*

Recently I discovered two treatises[1] on *Gandhaśāstra* (cosmetics and perfumery) *viz.* (1) the *Gandhasāra* of Gaṅgādhara and (2) *Gandhavāda* with Marathi commentary. According to my evidence these treatises appear to have been composed *between c. A.D. 1200 and 1600.* Unfortunately the authors of both treatises, though they have drawn their materials from earlier texts, do not mention the works from which they have drawn these materials. In a paper[2] on the antiquity of the *Campaka* oil recently published by me I have proved that Gaṅgādhara has borrowed two verses from the *Gandhayukti* chapter of the *Bṛhatsaṁhitā* of Varāhamihira (*c. A.D.* 500) pertaining to the manufacture of the *Campaka* oil (चम्पकाधिवतैल). To enable us to understand fully the historical back-ground of the two treatises on *Gandhaśāstra* referred to above we must record and study the extracts in earlier texts pertaining to the *Gandhaśāstra.* I record, therefore, in this paper some verses from the *Agnipurāṇa*[3] pertaining to *Gandhayukti* or manufacture of cosmetics and perfumery. These verses are as follows :—

Agnipurāṇa (Veṅkaṭeśvara Steam Press, Bombay), *chapter 224* (verses 19-42) dealing with राजधर्म (स्त्रीरत्नादिकामशास्त्र) :—

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* *Adyar Library Bulletin*, Vol. IX, Part IV, pp. 143—151.

1. I have published the following papers on these treatises :—

(i) *A Critical Analysis of a Rare MS of Gandhavāda, etc.* (*New Indian Antiquary*, Vol. VII pp. 185-193).

(ii) *The Gandhasāra of Gaṅgādhara*, an unknown Treatise on *Gandhaśāstra and its Critical Analysis*—(*Journal of the University of Bombay*, Vol. XIV, Part 2, pp. 44-52, 1945).

2. *Bharatiya Vidya*, Bombay, Vol. VI (July-August 1945), pp. 149-145.

3. Dr. R. C. Hazra in his *Purāṇic Records* (Dacca, 1940) has discussed the date of the present *Agnipurāṇa*. I note some points from this discussion (*Vide* pp. 134 ff.) :—

(i) The present *Agnipurāṇa* (= AP) is a sort of cyclopaedia in miniature. Its contents are divided into पराविद्या and अपराविद्या. The अपराविद्या division contains chapters on four *Vedas*, six *Vedaṅgas*, (शिक्षा, कल्प, व्याकरण, निरुक्त, छंदस् and ज्योतिष), अभिधान, मीमांसा, धर्मशास्त्र, पुराण, न्याय, वैद्यक, गान्धर्व, धनुर्वेद, and अर्थशास्त्र.

" घृतं सुगन्धि भवति दुग्धैः च्छित्तैस्तथा यवैः ।
भोज्यस्य कल्पनैव स्याद्गन्धयुक्तिः प्रदर्श्यते ॥ १९ ॥
शौचमाचमनं राम तथैव च विरेचनम् ।
भावनं चैव पाकश्च बोधनं धूपनं तथा ॥ २० ॥
वासनं चैव निर्दिष्टं कर्माष्टकमिदं स्मृतम्[4] ।
कपित्थबिल्वजंबाम्रकरवीरकपल्लवैः ॥ २१ ॥
कृत्वोदकं[5] तु यद्द्रव्यं शोधितं शोधनं तु तत् ।
तेषामभावे शौचं तु मृगदर्पाम्भसा भवेत् ॥ २२ ॥
नखं कुष्ठं घनं मांसी स्पृक्कशैलेयजं जलम् ।
तथैव कुङ्कुमं लाक्षा चन्दनागुरुनीरदम् ॥ २३ ॥
सरलं देवकाष्ठं च कर्पूरं कान्तया सह ।
वालः कुन्दुरुकश्चैव गुग्गुलुः श्रीनिवासकः ॥ २४ ॥
सह सर्जरसेनैवं धूपद्रव्यैकविंशतिः ।
धूपद्रव्यगणादस्मादेकविंशाद्यथेच्छया ॥ २५ ॥
द्वे द्वे द्रव्ये समादाय सर्जभागैर्नियोजयेत् ।
नखपिण्याकमलयैः संयोज्य मधुना तथा ॥ २६ ॥
धूपयोगा[6] भवन्तीह यथावत्स्वेच्छया कृताः ।
त्वचं नाडीं फलं तैलं कुङ्कुमं ग्रन्थिपर्वकम् ॥ २७ ॥

(ii) Accordingto Dr. Hazra "the *date* of compilation of the present *AP* is the same as that of the summaries and incorporations"—Dr. Hazra holds the view that "the present *AP* was *compiled sometime during the ninth Century*" (*i. e. between A. D. 800 and 900*).

4. It is clear from these lines that *AP* gives 8 *processes* (कर्माष्ट) in the manufacture of cosmetics *viz*. (1) शौच, (2) आचमन, (3) विरेचन, (4) भावन, (5) पाक, (6) बोधन, (7) धूपन, (8) वासन. Gaṅgadhara in the परिभाषा section of गन्धसार records, however, *six processes*: (1) भावन, (2) पाचन, (3) बोध, (4) वेध, (5) धूपन and (6) वासन ("भावनं, पाचनं बोधो वेधो धूपनवासने । एवं षडत्र कर्माणि द्रव्येषूक्तानि कोविदैः ॥"). Four processes are common to *AP* and गन्धसार.

5. The *Gandhasāra* records गन्धजल of 5 sorts (पञ्चविध).

6. Cf. गन्धसार contains 64 verses on the preparation of धूप्s (folios 12-15 of B.O.R.I. MS of गन्धसार in the Raddi collection).

शैलेयं तगरं कान्तां चोलं कर्पूरमेव च ।
मांसीं मुरां च कुष्ठं च स्नानद्रव्याणि[7] निर्दिशेत् ॥ २८ ॥

एतेभ्यस्तु समादाय द्रव्यत्रयमपेक्षया ।
मृगदर्पयुतं स्नानं कार्यं कन्दर्पवर्द्धनम् ॥ २९ ॥

त्वङ्मुरानलदैस्तुल्यैर्बालकार्द्धसमायुतैः ।
स्नानमुत्पलगन्धिस्यात्सतैलं कुङ्कुमायते ॥ ३० ॥

जातीपुष्पसुगन्धिस्यात्तगरार्द्धेन योजितम् ।
सव्यामकं स्याद्बकुलैस्तुल्यगन्धिमनोहरम् ॥ ३१ ॥

मञ्जिष्ठा तगरं चोलं त्वचं व्याघ्रनखं नखम् ।
गन्धपत्रं च विन्यस्य गन्धतैलं भवेच्छुभम् ॥ ३२ ॥

तैलं निपीडितं राम तिलैः पुष्पाधिवासितैः ।
वासनात्पुष्पसदृशं गन्धेन तु भवेद् ध्रुवम् ॥ ३३ ॥

एलालवङ्गकंकोलजातीफलनिशाकराः ।
जातीपत्रिकया सार्द्धं स्वतन्त्रा मुखवासकाः ॥ ३४ ॥

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7. Cf. गन्धसार has 24 verses on जलवास (folio 10 of B. O. R. I. MS). They deal with scents to be used in baths. Scents for the King's bath are mentioned in the following verse :—

" त्वक्कुष्ठरेणुनालिकास्पृक्कारसतगरवालकैस्तुल्यैः ।
केसरपत्रविमिश्रैर्नरपतियोग्यं शिरःस्नानम् ॥"

8. Cf. गन्धसार contains 34 verses on the preparation of scented oils (गन्धतैलs)—(folios 7-8 of B.O.R.I. MS). The process of extracting these scented oils as given in the *Agnipurana* is described in detail in the गन्धसार as follows (folio 7) :—

"तिलान्संशोधितानादौ अद्भिः प्रक्षाल्य कुट्टयेत् ।
निस्तुषीकृत्य घर्मेतान् शोषयेत्विमलांस्ततः ॥ ३ ॥
वासयेत्तद्यथापात्रं संशुद्धं विततानन्म् ।
धूपयित्वा तस्य तलमास्तीर्य कुसुमैः शुभैः ॥ ४ ॥
तानि प्रच्छादयेदेकांगुलोत्सेधतिलैः समम् ।
पुनः प्रसूनैरास्तीर्य पुनः प्रच्छादयेत्तिलैः ॥ ५ ॥
एवं प्रसूनांतरितैस्तिलैः पात्रं प्रपूरयन् ।
पिधाय पात्रवदनं वासयेत्तदहर्निशम् ॥ ६ ॥
ततः प्रभाते संशोध्य तिलान्पुष्पाणि संत्यजेत् ।
पुनः पुनः यथा पूर्वं तिलांस्तानेव वासयेत् ॥ ७ ॥
यावत्तिलाः प्रजायन्ते कटुका गंधवेदनात् ।
तावत्पुष्पैर्वासयित्वा यंत्रे निष्पीडयेत्ततः ॥ ८ ॥

कर्पूरं कुङ्कुमं कान्ता मृगदर्पं हरेणुकम् ।
कंकोलैलालवङ्गं च जातीकोशकमेव च ॥ ३५ ॥
त्वक्पत्रं त्रुटिमुस्तौ च लतां कस्तूरिकां तथा ।
कण्टकानि लवङ्गस्य फलपत्रे च जातितः ॥ ३६ ॥
कटुकं च फलं राम कार्षिकाण्युपकल्पयेत् ।
तच्चूर्णे खदिरं सारं दद्यात्तुर्यं तु वासितम् ॥ ३७ ॥
सहकाररसेनास्मात्कर्त्तव्या गुटिकाः[9] शुभाः ।
मुखन्यस्ताः सुगन्धास्ता मुखरोगविनाशनाः ॥ ३८ ॥
पूगं प्रक्षालितं सम्यक्पञ्चपल्लववारिणा ।
शक्त्या तु गुटिकाद्रव्यैर्वासितं मुखवासकम् ॥ ३९ ॥
कटुकं दन्तकाष्ठं[10] च गोमूत्रे वासितं त्र्यहम् ।
कृतं च पूगवद्राम मुखसौगन्धिकारकम् ॥ ४० ॥
त्वक्पथ्ययोः समावंशौ शशिभागार्द्धसंयतौ ।
नागवल्लीसमो भाति मुखवासो[11] मनोहरः ॥ ४१ ॥
एवं कुर्यात्सदा स्त्रीणां रक्षणं पृथिवीपतिः ।
न चासां विश्वसेज्जातु पुत्रमातुर्विशेषतः ।
न स्वपेत्स्त्रीगृहे रात्रौ विश्वासः कृत्रिमो भवेत् ॥ ४२ ॥

त्यादि महापुराणे आग्नेये स्त्रीरक्षादिकामशास्त्रं नाम चतुर्विंशत्यधिकद्विशततमोऽध्यायः ॥ २२४ ॥"

It will be seen from the footnotes to the above extract recorded by me that the topics in this extract have their parallels in the *Gandhasāra* of Gaṅgādhara. If the present *Agnipurāṇa* containing summaries and incorporations (including the गन्धयुक्ति verses) was compiled in the *9th* century *A. D.* as observed by Dr. Hazra, we have to point out that the

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9. Cf. गन्धसार—

"पूगयुकाः पारिजाता गुटिकाः खदिरैर्युताः ।"

10. Cf. गन्धसार—

'वक्त्रसौगन्ध्यकारित्वा शुध्यादाद्युपयोजनात् ।
दन्तकाष्ठं वक्त्रवासं सर्वाहमुपयोजये (त्) ॥
गोमूत्रे सातयाचूर्णे दन्तकाष्ठानि निक्षिपेत् ।
सप्ताहमथ कुष्ठैलात्वक्पात्राञ्जनवल्लिजैः ॥"

11. Cf. गन्धसार contains 24 verses on the preparation of मुखवास॰ (folios 5 and 7 of B.O.R.I. MS of गन्धसार).

गन्धयुक्ति described in the above extract may be taken to represent briefly the Indian knowledge of the art and manufacture of cosmetics and perfumery as current in the *9th century*. In fact this extract stands midway between the गन्धयुक्ति chapter of Varāhamihira's *Bṛhatsaṁhitā* (*c.A.D.500*) on the one hand and the treatise of Gaṅgādhara *viz.*, the *Gandhasāra* (between 1200 and 1600) on the other. Varāhamihira does not record the process of preparing गन्धतैल as described in brief in the *Agnipurāṇa* in verse 33 of the extract. This process has remained unaltered at least from the 9th century onwards as will be seen from the following table :—

A. D.	SOURCE	REFERENCE
Between 800–900	*Agnipurāṇa*	—" गन्धपत्रं च विन्यस्य गन्धतैलं भवेत् शुभम् । तैलं निपीडितं राम, तिलैः पुष्पाधिवासितैः ॥ "
c. 1130	*Manasollāsa* of Someśvara	—" पुन्नागचम्पकोद्दाम— गंधसंवासितैः तिलैः । यन्त्रसम्पीडितैस्तैलं गृहीत्वाऽभ्यङ्गमाचरेत् ॥ "
Between 1300 and 1600	*Gandhasāra* of Gaṅgādhara	—" यावत्तिलाः प्रजायन्ते कटुका गंधवेदनात् । तावत्पुष्पैर्वासयित्वा यंत्रे निष्पीडयेत्ततः ॥"
1811–1812	Buchanan's *Patna-Gaya* Report	—"At the beginning of the flowering season they take 82 seers (about 169 lbs.) of the *seed of Sesamum* (*Til*) and every fair day during the season add to one half of it as many *flowers* as they can collect ... ... The *seed is then squeezed in a common oil-mill etc.*"

In the *Cikitsāsthāna* of the *Carakasaṁhitā* we find several medical oils prescribed such as मधुयष्ट्यादितैल, सुकुमारकतैल, अमृताद्यतैल, महापद्मकतैल, खुड्डाकपद्मकतैल, मधुकतैल, बलातैल, पिण्डतैल *etc.* against वातरक्त (chapter 29). Some of these oil-preparations were made of varied materials, among which we

notice some aromatic ingredients like चन्दन, उशीर, केशर, तगर, कुष्ठ, मञ्जिष्ठा, मांसी, कुङ्कुम, पत्रैला, अगुरु, नख, वालक *etc.* It is possible to presume that the preparation of scented oils (गन्धतैल) developed side by side with the preparation of medical oils. In fact some of the aromatic ingredients used in the *Gandhaśāstra* had definite medical value. Though the *Gandhaśāstra* may have originated from the early back-ground of the Āyurvedic manufacture of medicines it appears to have developed as a specialized art[12] in course of time and consequently the *Kāmaśāstra* of Vātsyāyana mentions गन्धयुक्ति or the art of preparing cosmetics and perfumes as one of the 64 arts in which the gentleman of the period was expected to be proficient. These arts are mentioned as the constituents of the *Kāmasūtra* (कामसूत्रस्य अवयविन्य:) by Vātsyāyana. With the development of Indian culture in a full-fledged manner specialization in different arts and professions must have come into being and the *Gandhaśāstra*, which catered to the gay tendencies of ladies and gentlemen of antiquity, developed as both a science and an art, as it was useful both in secular and religious spheres of their activities. It was a science with a definite objective, so beautifully expressed by Gaṅgādhara at the beginning of his *Gandhasāra* in the following verse :—

" देवानां शुभगंधधूपसहितस्यार्चाविधेरर्पकं
नृणां पुष्टिकरं, त्रिवर्गफलदं, स्वस्याप्यलक्ष्मीहरम् ।
राज्ञां तोषकरं, विदग्धवनिताचित्तप्रमोदप्रदं
शास्त्रं सच्छुभगन्धशासनमतो दिङ्मात्रमत्रोच्यते ॥"

Verily, the Indian *Gandhaśāstra* could not but prosper as it pleased Gods, contributed to the comforts of men, and delighted the hearts of kings and accomplished ladies, besides making its devotees prosperous—thus fulfilling the three ends of human life (*Dharma*, *Artha* and *Kāma*). The early history of such a *Gandhaśāstra* needs to be reconstructed systematically in the light of the two treatises recently discovered by me *viz.* the *Gandhasāra* of Gaṅgādhara and the *Gandhavāda* with a Marathi commentary.

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12. Vide *Kāmasūtra* ed. by Pandit Kedarnath, N. S. Press, Bombay, 1900 (साधारणमधिकरणम्—Chapter 3, p. 32)—The commentator यशोधर explains गन्धयुक्ति as follows :—

" गन्धयुक्तिरिति । स्वशास्त्रविहितप्रपञ्चा प्रतीतप्रयोजना" ।

9. The Gandhayukti Section of the Viṣṇudharmottara and its Relation to other Texts on the Gandhaśāstra*

In my *Studies in the History of Indian Cosmetics and Perfumery* (*Gandhaśāstra*) so far published, I have analysed and made use of the following Sanskrit texts on the *Gandhaśāstra* :—

(1) Two special treatiseson the *Gandhaśātra* (composed between *c.A.D.* 1300 *and* 1600) discovered by me, viz. (i) *Gandhasāra of* of Gaṅgādhara and (ii) *Gandhavāda* with Marathi Commentary.[1]

(2) The chapter called "*Gandhādhikāra*" of a work on erotics called the *Nāgarasarvasva* by a Buddhist author Padmaśrī (*About A.D.* 1000).[2]

(3) The *Gandhayukti* section of the *Agnipurāṇa* (*Between A.D.* 800 *and* 900).[3]

(4) The *Gandhayukti* section of the *Bṛhat Saṁhitā* of Varāhamihira (*c.* 500 *A.D.*).[4]

The above sources prove beyond challenge the history of the *Gandhaśāstra* literature for more than 1500 years, though unfortunately the texts on this subject which have come down to us are few and fragmentary. It should, therefore, be our endeavour to link up every new source with the texts referred to above to enable us to have a connected view of the history of the *Gandhaśāstra* from the remotest antiquity to the presentday.

I propose here to deal with the *Gandhayukti* section of the *Viṣṇudharmottara Purāṇa* (Khaṇḍa II, chap. 64, pp. 220—221 of Venkatesvar Press Edition, Bombay). This section reads as follows :—

" पुष्करउवाच ॥

A 20 शोधनं वासनं चैव तथैव च विरेचनम् ।

भावना चैव पाकश्च बोधनं धूपनं तथा ॥ १ ॥

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* *Journal of G. Jha Research Institute*, Vol. III, parts 3 and 4, pp. 279—294.

1. Vide *Journal of the Bombay University*, Sept. 1945, pp. 44-52; *New Indian Antiquary*, Feb-March, 1945, pp. 185-193.

2. *Ibid*, pp. 51-52.

3. *Adyar Library Bulletin* Vol. IX (Part 4) 1945, pp. 143-151.

4. *Bharatiya Vidya*, July-August, 1945, pp. 149-156.

A 21 वासनं चैव निर्दिष्टं कर्माष्टकमिदं शुभम्[5] ।
कपित्थबिल्वजम्बाम्रबीजपूरकपल्लवैः ॥ २ ॥

A 22 कृत्वोदकं तु यद्द्रव्यं शोधितं शौचि तु तत् ।
तेषामभावे शौचं तु मृतदर्शाम्भसा भवेत् ॥ ३ ॥

तदभावे तु कर्तव्यं तदा मुस्ताम्भसा द्विज ।
शुष्कं शुष्कं पुनर्द्रव्यं पञ्चपल्लववारिणा ॥ ४ ॥

प्रक्षालितं चाप्यसकृद्वमितं तत्प्रकीर्तितम् ।
पञ्चपल्लवतोयेन क्वाथयित्वा पुनः पुनः ॥ ५॥

द्रव्यं संशोधितं कृत्वा चूर्णं तस्य तु कारयेत् ।
हरीतकीं ततः पिष्ट्वा पञ्चपल्लववारिणा ॥ ६ ॥

तेन पथ्याकषायेण तच्चूर्णं भावयेत्सकृत् ।
शोषितं शोधयेदेतद्विरेकं तत्प्रकीर्तितम् ॥ ७ ॥

ततस्तु गन्धद्रव्येण यथेष्टं कुङ्कुमादिना ।
भावयेत्तेन तद् द्रव्यं भावना सा प्रकीर्तिता ॥ ८ ॥

तेनैव भावयेद् द्रव्यं पञ्चपल्लववारिणा ।
आश्वत्थेनैव तेनाथ द्रव्यं राम तथास्तु तत् ॥ ९ ॥

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5. Compare the *Six* processes of manufacturing cosmetics mentioned in the र्शभावप्रकरण of the गन्धसार of गङ्गाधर in the following verse :—

"भावनं पाचनं बोधो वेधो धूपनवासने ।
एवं षडत्र कर्माणि द्रव्येषूक्तानि कोविदैः ॥ ६ ॥"

Here I shall compare the verses on गन्धयुक्ति in the विष्णुधर्मोत्तर with those found in the अग्निपुराण (Venkateswar Press, Bombay). *Chapter* 224 (verses 19-42.) [A 20 = *Agnipurana* Cap. 224 verse 20 and so on] :—

A 20 — शौचमाचमनं राम तथैव च विरेचनम् ।
भावनं चैव पाकश्च बोधनं धूपनं तथा । २० ॥

A 21 — वासनं चैव निर्दिष्टं कर्माष्टकमिदं स्मृतम् ।
कपित्थबिल्वजम्बाम्रकरवीरकपल्लवैः ॥ २१ ॥

A 22 — कृत्वोदकं तु यद् द्रव्यं शोधितं शोधनं तु तत् ।
तेषामभावे शौचं तु मृगदर्पाम्भसा भवेत् ॥ २२ ॥

मृदा विहितसत्वो तु मृण्मये भाजनद्वये ।
क्षिपचेतु विधूमाग्नावर्तधूमः पुनः पुनः ॥ १० ॥[6]
तावेव क्वाथयेत्तावत्तत्रैवानुगतो रसः ।
एतत्पाकविधानं ते पञ्चमं परिकीर्तितम् ॥ ११ ॥
ततस्तु भावनाद्रव्यं कल्कपिष्टं नियोजयेत् ।
कल्कपिष्टे तथा द्रव्यं बोधनं परिकीर्तितम् ॥ १२ ॥
ततस्तु धूपयेद् द्रव्यं [7] पूर्वमेव तु पथ्यया ।
ततस्तु गुग्गुलुक्तिभ्यां चन्दनागरुभिस्ततः ॥ १३ ॥
कर्पूरमृगदर्पाभ्यां ततश्चैनं तु धूपयेत् ।
इत्येतद्वासनं नाम कर्म तद्विहितं मया ॥ १४ ॥
ततस्तु गुलिकां कृत्वा यथाकाममतन्द्रितः ।
पुष्पैर्बकुलजातीनां तथान्येषां सुगन्धिभिः ॥ १५ ॥
छायासु शोष्यमाणस्य वासना क्रियते तु या ।
वासना सा विनिर्दिष्टा कर्मैतच्चाष्टमं शुभम् ॥ १६ ॥

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6. The *Gandhasāra* mentions different varieties of पाक such as—(1) पुटपाक, (2) गर्तपाक, (3) वेणुपाक, (4) दोलापाक, (5) खर्परपाक, (6) दैजयूरपाक, (7) कालपाक (See verses 8–17 of परिभाषाप्रकरण of गन्धसार—B.O R. Institute MS in the Raddi Collection). The पुटपाक and गर्तपाक are described in the गन्धसार as follows :—

"पंचपत्रपुटाबद्धं मृल्लिप्तं चांगुलोन्नतम् ॥ ८ ॥
पचेत्स्ववारीशाके वह्नौ पुटपाकोऽयमीरितः ।
गर्ते पात्रं गंधगर्भं कृत्वाऽऽपूर्य मृदावटम् ॥ ९ ॥
प्रज्वाल्याग्निस्तदुपरि गर्तपाको भवेदयम् ।"

7. The aromatic ingredients (गन्धद्रव्य) mentioned by Varahamihira in the गन्धयुक्ति section of the बृहत्संहिता (c. A. D. 500) are :— "पत्र तुरुष्क बालतगरैः", बकुल, चम्पक, जाती, त्वक्, अतिमुक्तक, कुसुम्भुक, शतपुष्पा, कुन्दुरुक, नख, प्रियङ्गु, गुडनख, गुग्गुलु, वालक, लाक्षा, मुस्ता, मांसी, चन्दन, हरीतकी, शङ्खधनद्रव, शैलक, श्रीसर्ज, उशीर, सूक्ष्मैला, "मृगकर्पूर", कर्पूर, व्याघ्रनख, स्पृक्का, अगुरु, दमनक, तगर, चोर, मलय, कस्तूरिका, शैलेय, सर्जरस, श्रीवासक, रोध्र, हिङ्गुल, केसर, राला, मरिच, जातीफल, ताम्बूल, पूगफल, बकोल, लवलीफल,—I note here articles in the *Hobson-Jobson* (1903) on a few of the above ingredients :—Pages 152-153—*CAMPHOR*—usages recorded are :— c. *A.D.* 540 (*Caphura*, c. *A.D.* 940—*Camphor*), *A D.* 1298 (*Camfora*), etc.

Pages 913-914—*TEMBOOL*—usages recorded are from *A D.* 1298 (*Tembul*) onwards.

Pages 599—*MUSK* (कस्तूरी)—usages :—c. *A D.* 390 (*muscus*) mentioned by St. Jerome) c. *A.D.* 545 (*Musk* animal) etc.

Pages—789-790—*SANDAL* (चन्दन)—usages :—*Sandalwood* (c. *A D.* 545) onwards.

Page 499—*LAC* (लाक्षा)—usages :—*Lac-dye* (c. *A D.* 80-90) mentioned in *Periplus*.

कर्माष्टकमिदं कृत्वा वचां पिण्डनिभां तथा ।
मुस्तं शैलेयकं वापि सेव्यं वा द्विजसत्तम ॥ १७ ॥
शोधयेद्गान्धिको विद्वान्यथावत्कर्म सेत्स्यति ।
निर्यासानां च पुष्पाणां कर्माष्टकमिदं शुभम् ॥ १८ ॥
विदुषा नैव कर्तव्यं कार्यमन्यत्र भार्गव ।
अशोधितैस्तथा धूपाः[8] कार्या द्रव्यैर्यथाविधि ॥ १९ ॥
अतःपरं तु ते योगान्कांश्चिद्वक्ष्यामि ताञ्छृणु ।
A 23 नखं कुष्टं धनं मांसी स्पृक्त्वा शैलेयकं जलम् ॥ २० ॥
तथैव कुंकुमं लाक्षा चन्दनागुरुणी नतम् ।
A 24 सरला देवकाष्टं च कर्पूरं कान्तया सह ॥ २१ ॥
बोलं कन्दुरुकश्चैव गुग्गुलः श्रीनिवासकः ।
A 25 सहसर्जरसेनेयंधूपद्रव्यैकविंशतिः ॥ २२ ॥
धूपद्रव्यगणादस्मादेकविंशाद्यथेच्छया ।
A 26 द्वे द्वे द्रव्ये समादाय सर्जभागे नियोजयेत् ॥ २३ ॥
नवे पिण्याकवलयैः संयोज्य मधुना तथा ।
A 27 धूपयोग्याभवन्तीह यथावत्स्वेच्छया कृताः ॥ २४ ॥
त्वचं जातीफलं तैलं कुङ्कुमं ग्रन्थिपर्णकम् ।
A 28 शैलेयं तगरं काष्ठं ताम्बूलं तगरं तथा ॥ २५ ॥
मांसीसरावकुष्ठं च नवद्रव्याणि निर्दिशेत् ।

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8. The *Gandhavāda* (folios 45-47 of B. O. R.I. MS) describes the manufacture of [different] kinds of धूपs, with fanciful names such as अनंगसुन्दर, कोलाहल, कुमारधूप, [etc]. The *Gandhasāra* also describes the preparation of धूप, Vide folios 12-15 of B. O. R. I. MS (*Gandhasāra*).

A 23 नखं कुष्टं धनं मांसी स्पृक्कशैलेयकं जलम् ।
तथैव कुंकुमं लाक्षा चन्दनागुरुनीरदम् ॥ २३ ॥
A 24 सरलं देवकाष्ठं च कर्पूरं कान्तया सह ।
वालः कुन्दुरुकश्चैव गुग्गुलः श्रीनिवासकः ॥ २४ ॥
A 25 सह सर्जरसेनैवं धूपद्रव्यैकत्रिंशतिः ।
धूपद्रव्यगणादस्मादेकविंशाद्यथेच्छया ॥ २५ ॥
A 26 द्वे द्वे द्रव्ये समादाय सर्जभागे नियोजयेत् ।
नखपिण्याकमलयैः संयोज्य मधुना तथा ॥ २६ ॥
A 27 धूपयोग्या भवन्तीह यथावत्स्वेच्छया कृताः ।
त्वचं नाडीफलं तैलं कुङ्कुमं ग्रन्थिपर्वकम् ॥ २७ ॥
A 28 शैलेयं तगरं कान्तां चोलं कर्पूरमेव च ।
मांसीं सुरां च कुष्ठं च स्नान द्रव्याणि निर्दिशेत् ॥ २८ ॥

A 29 एतेभ्यस्तु समादाय द्रव्यं तत्र यथेच्छया ॥ २६ ॥
मृगदर्पयुतं स्नानं कार्यं कन्दर्पवर्धनम् ।
A 30 द्रवमुरानलदेस्तुल्यैर्वान्यकारसमायुतैः ॥ २७ ॥
स्नानमुत्पलगन्धि स्यात्सतैलं कुंकुमैर्युतम् ।
A 31 a जातीपुष्पसुगन्धि स्यात्तगरार्धेन योजितम् ॥ २८ ॥
बालकाञ्चनसंयुक्तं पाटलाकुसुमायते ।
A 31 b स व्यापकं स्याद्बकुलैस्तुल्यगन्धिमनोहरम् ॥ २९ ॥
नालिकावंशसहितं कुष्टिगादेन चार्यकम् ।
द्विकेसरं वेणुगादं कुन्दपुष्पायते तथा ॥ ३० ॥
शैलपादार्धसंयुक्तं व्यक्तं मदनकं भवेत् ।
A 32 मञ्जिष्ठा तगरं बालं द्वयं व्याघ्रनखं नखम् ॥ ३१ ॥
गन्धपत्रं च विन्यस्य गन्धतैलं [9] भवेच्छुभम् ।

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9. Comparethe चम्पकगन्धितैल, mentioned in the गन्धयुक्ति section of the *Bṛhatsaṁhita* (*c.A.D. 500*) :—

"मञ्जिष्ठया व्याघ्रनखेन शुक्त्या
त्वचा सकुष्ठेन रसेन चूर्णः ।
तैलेन युक्तोऽर्कमयूखतप्तः
करोति तच्चंपकगंधितैलम् ॥ ६ ॥"

This verse has been incorporated in the *Gandhasāra* (*Folio* 8, verse 24 of B.O.R.I. MS).

As regards "मृगदर्पयुतं स्नानं", mentioned in verse 27 of the विष्णुधर्मोत्तर (गन्धयुक्ति), compare the following verse of नागरसर्वस्व (गन्धाधिकार) :—

"त्वगगुरुमुस्तकतगरं चोरशठी ग्रन्थिपर्णकनखं च ।
कस्तूरीसंयुक्तं स्नानीयं तत् प्रशस्यते सद्भिः ॥ १२ ॥
—स्नानीयचूर्णवासः ।"

A 29 एतेभ्यस्तु समादाय द्रव्यत्रयमपेच्छया ।
मृगदर्पयुतं स्नानं कार्य्यं कन्दर्पवर्धनम् ॥ २९ ॥
A 30 त्वङ्मुरानलदैस्तुल्यैर्वलिकार्धसमायुतैः ।
स्नानमुत्पलगन्धि स्यात् सतैलं कुङ्कुमायते ॥ ३० ॥
A 31 जातीपुष्पसुगन्धि स्यात्तगरार्द्धेन योजितम् ।
सहयात्मकं स्याद्बकुलैस्तुल्यगन्धिमनोहरम् ॥ ३१ ॥
A 31 मञ्जिष्ठा तगरं चोलं त्वचं व्याघ्रनखं नखम् ।
गन्धपत्रं च विन्यस्य गन्धतैलं भवेच्छुभम् ॥ ३२ ॥
A 32 तैलं निपीडितं राम तिलैः पुष्पाधिवासितैः ।
वासनात्पुष्पसदृशं गन्धेन तु भवेद् ध्रुवम् ॥ ३३ ॥
एलालवङ्गकङ्कोलजातीफलनिशाकराः ।
जातीपत्रिका सार्द्धं स्वतन्त्रा मुखवासकाः ॥ ३४ ॥

A 33 तैलं निष्पीडितं राम तिलैः पुष्पाधिवासितैः ॥ ३२ ॥
वासना पुष्पसदृशं गन्धने तु भवेद्द्रुतम् ।
पूर्ववच्छोषयित्वा तु मुस्तं सेव्यं वचां निशाम् ॥ ३३ ॥
अभीष्टमन्यत्कलुषं यथावदनुलेपयेत् ।
उद्धृत्य चन्दनादिं च शोधनं वमनं तथा ॥ ३४ ॥
वर्जयित्वा विरेकं च शेषकर्माणि कारयेत् ।
तद्वा भवति धर्मज्ञ वर्णकं त्रिदिवप्रियम् ॥ ३५ ॥
पटवासांसि कार्याणि वर्णकैः श्लक्ष्णचूर्णितैः ।
A 34 एलालवङ्गकक्कोलजातीफलनिशाकराः ॥ ३६ ॥
जातिपत्त्रिकया सार्द्धं स्वतन्त्रं मुखवासकम् ।
A 35 कर्पूरं कुंकुमं कान्तं मृगदर्पं हरेणुकम् ॥ ३७ ॥
कक्कोलैलालवङ्गं च जातीकोशकमेव च ।
A 36 द्रुक्पत्रं त्रुटिमुस्तं च लताकस्तूरिकं तथा ॥ ३८ ॥
कण्टकानि लवङ्गस्य फलपत्रैश्च जातितः ।
A 37 कटुकं च फलं राम कर्पिकाण्डां प्रकल्पयेत् ॥ ३९ ॥
तच्चूर्णे खदिरं सारं दद्यात्तुल्यतुलार्थितम् ।
A 38 सहकारसेनास्य कर्तव्या गुलिकाः शुभाः ॥ ४० ॥
मुखे न्यस्ताः सुगंधास्ता मुखरोगविनाशनाः ।
A 39 पूर्वं प्रक्षालितं सम्यक्चव्यपल्लववारिणा ॥ ४१ ॥
शक्त्या तु गुलिकद्रव्यैर्वासितं मुखवासकम् ।[10]

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10. Compare the following verses on मुखवास in the गन्धाधिकार of नागरसर्वस्व (12 of Tripathi's Edition, Bombay, 1921).

"जातीफलकस्तूरीकर्पूरं चूतवारि-संस्थितम् ।
धूपितमगुरुकशिह्लकमधुगुडसितैश्च मुखवासः ॥ ७ ॥

A 35 कर्पूरं कुङ्कुमं कान्तं मृगदर्पं हरेणुकम् ।
कंकोलैलालवङ्गं च जातीकोशकमेव च ॥ ३५ ॥
A 36 त्वक्पत्रं त्रुटिमुस्तौ च लतांकस्तूरिकां तथा ।
कण्टकानि लवङ्गस्य फलपत्रैश्च जातितः ॥ ३६ ॥
A 37 कटुकं च फलं राम कार्पिकाण्युपकल्पयेत् ।
तच्चूर्णे खदिरं सारं दद्यात्तुर्यं तु वासितम् ॥ ३७ ॥
A 38 सहकाररसेनास्मात् कर्त्तव्याः गुटिकाः शुभाः ।
मुखन्यस्ताः सुगंधास्ता मुखरोगविनाशनाः ॥ ३८ ॥
A 39 पूगं प्रक्षालितं सम्यक्चव्यपल्लववारिणा ।
शक्त्या तु गुटिकाद्रव्यैर्वासितं मुखवासकम् ॥ ३९ ॥

A 40 कटुकं दन्तकाष्ठं च गोमूत्रे वासितं त्र्यहम् ॥ ४२ ॥
कृतं च पूगवद्वाम[11] मुखसौगन्ध्यकारकम् ।
A 41 त्वक्खदिरयोः समावंशौ सितभागार्धसंयुतौ ॥ ४३ ॥
नागवल्लीसमो भाति मुखवासो मनोहरः ।
कटुकफलनताम्बुत्वक् टिव्याधिपत्रै—
र्नलदनतमुराभिस्तुल्यभागान्वितानि ।
द्विगुणितकृतमात्राप्रातिकल्लोलसैन्यैः
शशिरसरसमोऽयं गन्धपात्रं विदध्यात् ॥ ४४ ॥
निहितमिदमनर्घं कर्णरन्ध्रं युवत्याः
शमयति विविधानि श्रोत्रपालीगदानि ।
अपरमपि च याश्तकाममामोदमत्तं
भ्रमदलिपटलेन व्याप्यते वक्त्रभागः ॥ ४५ ॥

क्रमवर्धितं त्वगेला मांसी शठयगुरु कुङ्कुमं चापि ।
घनचन्दनजातीफललवङ्गकक्कोलकर्पूरम् ॥ ८ ॥
अष्टांशवंशरोचनसुकलितमतिस्वल्पशर्करासहितम् ।
पिष्ट्वा सहकाररसैर्मुखवासो भूमिपालानाम् ॥ ९ ॥

See also ताम्बूलभोग (p. 85 of मानसोल्लास, Vol II, G.O.S., Baroda, 1939). Verses 974-976 refer to a गुटिका prepared of खदिरकाथचूर्ण, कस्तूरिकोद, कर्पूररजस् , श्रीखण्डकल्क etc.

11. Compare the description of पूगवास in नागरसर्वस्व (c. A.D. 1000)
"कुष्ठतगरजातीफलकर्पूरलवङ्गकेलाभिः ।
वरतनु वासय शीघ्र पूगफलं भूमिपालानाम् ॥ ११ ॥"

The सुश्रुतसंहिता (सूत्रस्थान,) Chap. 46, verses 201-204) refers to पूगवास and its ingredients (See p 441 of Vol. I of Marathi Trans. by Krishnashastri Phadke, Bombay, 1921) :—
"कफपित्तहरं रूक्षं वक्त्रक्लेदमलापहम् ।
कषायमीषन्मधुरं किंचित्तत्फलं सरम् ॥ २०१ ॥
जातीकोशोऽथ कर्पूरं जातीकटुकयोः फलम् ।
कक्कोलकं लवङ्गं च तिक्तं कटु कफापहम् ॥ २०२ ॥
लघु तृष्णापहं वक्त्रक्लेददौर्गन्ध्यनाशनम् ।
सतिक्तः सुरभिः शीतः कर्पूरो लघुलेखनः ॥ २०३ ॥
तृष्णायां मुखशोषे च वैरस्ये चापि पूजितः ।"
A 40 कटुकं दन्तकाष्ठे च गोमूत्रे वासितं त्र्यहम् ।
कृतं च पूगवद्वाम मुखसौगन्धिकारकम् ॥ ४० ॥
A 41 त्वक्खदिरयोः समावंशौ शशिभागार्धसंयुतौ ।
नागवल्ली समो भाति मुखवासो मनोहरः ॥ ४१ ॥

इति श्रीविष्णुधर्मोत्तरे द्वितीयखण्डे मा० सं० रामं प्रति पुष्करोपाख्याने गन्धयुक्तिर्नाम चतुर्षष्टितमोऽध्यायः ॥ ६४ ॥"

The above chapter is preceded by chapter 63 called "भोज्यकल्पनाकथनम्" and is followed by chapter 65 called "राजधर्मवर्णनम्."

In the foregoing extract on गन्धयुक्ति from the *Viṣṇudharmottara* I find verses 20 to 41 on गन्धयुक्ति from chapter 224 of the *Agnipurāṇa*. To enable scholars to mark the few textual variants I have reproduced the verses from the *Agnipurāṇa* below the footnotes as I found them in the printed edition of this Purāṇa (Venkateswar Press, Bombay). The following table will, however, show at a glance the relation of the *Gandhayukti* verses of the *Agnipurāṇa* with those in the *Gandhayukti* chapter of the *Viṣṇudharmottara* :—

विष्णुधर्मोत्तर Khaṇḍa II Chapter 64 (गन्धयुक्ति)	अग्निपुराण Chap. 224 (राजधर्म)	वि० ध० Kh. II Chap. 64 (गन्धयुक्ति)	अग्निपुराण Chap. 224 (राजधर्म)
Verse 1	A 20	Verse ,, 23^{b} }	A 26
,, 2	A 21	,, 24^{a}_{b} }	A 27
,, 3	A 22	,, 25^{a}_{b} }	A 28
,, 4		,, 26^{a}_{b} }	A 29
,, 5		,, 27^{a}_{b} }	A 30
,, 6		,, 28^{a}_{b} }	——A 31a }
,, 7		,, 29^{a}_{b}	——A 31b }
,, 8		,, 30	
,, 9		,, 31^{a}_{b} }	A 32
,, 10		,, 32^{a}_{b} }	A 33
,, 11		,, 33^{a}_{b}	
,, 12		,, 34	
,, 13		,, 35	
,, 14		,, 36^{a}_{b} }	
,, 15		,, 37^{a}_{b} }	A 34
,, 16		,, 38^{a}_{b} }	A 35
,, 17		,, 39^{a}_{b} }	A 36
,, 18		,, 40^{a}_{b} }	A 37
,, 19		,, 41^{a}_{b} }	A 38
,, 20^{b} }	A 23	,, 42^{a}_{b} }	A 39
,, 21^{a}_{b} }		,, 43^{a}_{b} }	A 40
,, 22^{a}_{b} }	A 24	,, 44^{c}	A 41
,, 23^{a}_{b}	A 25	,, 45	

The above table gives an impression that the *Gandhayukti* verses of the *Agnipurāṇa*, which are about half of the *Gandhayukti* verses of the *Viṣṇudharmottara*, have been borrowed by the *Agnipurāṇa* from the *Viṣṇudharmottara*.

I cannot say if both these *Purāṇas* have borrowed their *Gandhayuktiverses* from an earlier common source. We must hunt up the *Gandhayukti* textsin other *Purāṇas* and correlate them with those in the *Bṛhatsamhitā, Viṣṇudharmottara, Agnipurāṇa, Nāgarasarvasva, Gandhasāra, Gandhavāda* etc. In this way alone we can put the history of the *Gandhaśāstra* on a secure basis.

Gaṅgādhara in his *Gandhasāra* tells us that the *Gandhaśāstra* is helpful in the worship of gods (देवानां शुभगंधधूपसहितसगार्चाविधेर्दक्रम्). This statement is corroborated by the references to perfumes prescribed for religious worship. I note below the following extracts from the *Kālikāpurāṇa* (*Venkateswar Press, Bombay*, Śaka 1829—1907) which describe the perfumes to be used for such worship:— Chapter 73 (folio 189)— Description of गन्ध to be used for the worship of goddess —

"गन्धं च सम्यक् शृणुतं पुत्रौ वेतालभैरवौ ।
चूर्णीकृतो वा घृष्टो वा दाहाकर्षित एव वा ॥ ३७ ॥
रसः सम्मर्दजो वापि प्राण्यंगोद्भव एव वा ।
गन्धः पञ्चविधः प्रोक्तो देवानां प्रीतिदायकः ॥ ३८ ॥
गन्धचूर्णं गन्धपत्रं चूर्णं सुमनसस्तथा ।
प्रशस्तगन्धयुक्तानां पत्रचूर्णानि यानि तु ॥ ३९ ॥
तानि गन्धवहानि स्युः स गन्धः प्रथमः स्मृतः ।
घृष्टो मलयजो गन्धः स चूर्णीकृतमेरुणा ॥ ४० ॥
अगुरुप्रभृतिश्चापि यस्य पंकः प्रदीयते ।
गन्धो दृषद्घृष्टोयं द्वितीयः परिकीर्तितः ॥ ४१ ॥
देवदार्वगुरुकाश्मर्यशालशारान्तचन्दनाः ।
प्रियादीनाञ्च यो दग्ध्वा गृह्यते दाहजो रसः ॥ ४२ ॥
स दाहाकर्षितो गन्धः तृतीयः परिकीर्तितः ।
सुगन्धकरवीबिल्वगन्धीनि तिलकं तथा ॥ ४३ ॥
प्रभृतीनां रसो योसौ निःपीड्य परिगृह्यते ।
स सम्मर्दोद्भवो गन्धः सम्मर्दज इतीष्यते ॥ ४४ ॥
मृगनाभिसमुद्भूतः तत्कोषोद्भव एव वा ।
गन्धः प्राण्यङ्गजः प्रोक्तो मोददः स्वर्गवासिनाम् ॥ ४५ ॥
कर्पूरगन्धसाराद्याः क्षोदे घृष्टे च संस्थिताः ।
चन्द्रभागादयश्चापि रसे पंके च संगताः ॥ ४६ ॥

गन्धसारं सर्वरसं गन्धादौ च प्रयुज्यते ।
मृगनाभिर्भवेद् घृष्टश्चूर्णोऽप्यन्यस्य योगतः ॥ ४७ ॥

एवं सर्वे तु सर्वत्र गन्धो भवति पञ्चधा ।
घृष्टादिभावादन्योन्यं गन्धः प्रीतिकरः परः ॥ ४८ ॥

गन्धस्य विस्तरो भेदः प्रोक्तः कालीयकादयः ।
सर्वः पञ्चविधेष्वेव प्रविष्टो भवति क्षणात् ॥ ४६ ॥

गन्धो मलयजो यस्तु दैवे पित्र्ये च संमतः ।
तस्य पंको रसो वापि चूर्णं वा विष्णुतुष्टिदः ॥ ५० ॥

सर्वेषु गन्धजातेषु प्रशस्तो मलयोद्भवः ।
तस्मात्सर्वप्रयत्नेन दद्यान्मलयजं सदा ॥ ५१ ॥

कृष्णागुरुः सकर्पूरः सहितो मलयोद्भवैः ।
वैष्णवी प्रीतिदो गन्धः कामाख्यायाश्च भैरव ॥ ५२ ॥

कुङ्कुमागुरुकस्तूरीचन्द्रभागैः समीकृतैः ।
त्रिपुराप्रीतिदो गन्धस्तथा चण्डयाश्च शस्यते ॥ ५३ ॥

दैवतोद्देशपूर्वेण गन्धं संपूज्य साधकः ।
देवायेष्टाय वितरेत्सर्वसिद्धिप्रदं सदा ॥ ५४ ॥

गन्धेन लभते कामान् गन्धो धर्मप्रदः सदा ।
अर्थानां साधको गन्धः गन्धे मोक्षः प्रतिष्ठितः ॥ ५५ ॥"[12]

The foregoing description of the different गन्धs and their application in the worship of deities is sufficiently informative. गन्ध is one of the five accessories of religious worship mentioned by the *Kalikapurāṇa* in the line "गन्धं पुष्पं च धूपं च दीपं नैवेद्यमेव च" (chap. 73, verse, 101) and also describedat length in the same context. Of the two items of religious worsbip (अर्चाविधि), viz., "गन्धधूप" mentioned by the *Gandhasāra* I have already recorded above the testimony of the *Kalikapurāṇa* about गन्ध. I shall now

12. Gaṅgādhara in his *Gandhasāra* calls the गन्धशास्त्र as त्रिवर्गफलद *i.e.* fulfilling the three ends of human life viz. (1) धर्म, (2) अर्थ and (3) काम. He also calls the गन्धशास्त्र as " देवानां...अर्चाविधिपरकम् " i.e. useful for the worship of Gods. This statement corresponds to the statement of the *Kalikapurāṇa* गन्धे मोक्षः प्रतिष्ठितः ।

It will thus be seen that गन्धशास्त्र is useful for fulfilling the four ends of human life, viz. धर्म, अर्थ, काम and मोक्ष.

record its description of धूप and its varieties as used in descriptionreads as follows :—

Chap. 73 (folio 192):—

"एवं वा कथितो दीपो धूपं च शृणुतं सुतौ ।
नानाविधःप्रमुखदः सुगन्धोऽतिमनोहरः ॥ ३२ ॥

दह्यमानस्य काष्ठस्यप्रयतस्येतरस्य च ।
परागस्याथवा धूमो निस्तापो यस्य जायते ॥ ३३ ॥

स धूप इति विज्ञेयो देवानां तुष्टिदायकः ।
राशीकृतैर्न चैकत्र तैर्द्रव्यैः परिपूजयेत् ॥ ३४ ॥

दोषाग्निवत्तत्तां कृत्वा न तत्फलमवाप्नुयात् ।
श्रीचन्दनं च सरलः शालः कृष्णागुरुस्तथा ॥ ३५ ॥

उदयः सुरपस्कन्दो रक्तविद्रुम एव च ।
पीतशालः परिमलो विमर्दीकाशालस्तथा ॥ ३६ ॥

नमेरुर्देवदारुश्च बिल्वसारोऽथ खादिरः ।
सन्तानः पारिजातश्च हरिचन्दनवल्लभो ॥ ३७ ॥

वृक्षेषु धूपाः सर्वेषां प्रीतिदाः परिकीर्तिताः ।
सरालः सह सुवेषा श्रीवासः पद्मवासकः ॥ ३८ ॥

कर्पूरः श्रीकरश्चैव परागः श्रीहरामलो ।
सर्वौषधीव जातीव वराहश्चूर्णं उत्कलः ॥ ३९ ॥

जातीकोषस्य चूर्णं च गन्धः कस्तूरिका तथा ।
क्षोदे वृत्ते च गदिता धूपा एते उदाहृताः ॥ १४० ॥

यक्षधूपो वृक्षधूपः श्रीपिष्टोऽगुरुभर्भरः ।
पत्रिवाहः पिण्डधूपः सुगोलः कण्ठ एव च ॥ ४१ ॥

अन्योन्ययोगा निर्यासा धूपा एते प्रकीर्तिताः ।
एतैर्विधूपयेद्देवान्धूमिभिः कृष्णवर्त्मना ॥ ४२ ॥

येषां धूपोद्भवैर्घ्राणैस्तुष्टिं गच्छन्ति जन्तवः ।
निर्यासश्च परागश्च काष्ठं गन्धं तथैव च ॥ ४३ ॥

कृत्रिमश्चेति पञ्चैते धूपाः प्रीतिकराः पराः ।
न यक्षधूपं वितरेन्माधवाय कदाचन ॥ ४४ ॥

न रक्तं विद्रुमं मह्यं सुरपं कद्रिलं तथा ।
यक्षधूपः पुत्रिवाहः पिण्डधूपः सुगोलकः ॥ ४५ ॥

कृष्णागुरुः सकर्पूरो महामायाप्रियः स्मृतः ।
वृकधूपेन वा देवीं महामायां[13] प्रपूजयेत् ॥ ४६ ॥

मेदोमज्जासमायुक्तान्न धूपान्विनियोजयेत् ।
परकीयांस्तथाघ्रातांस्तेपि कृत्याभिमर्द्दितान् ॥ ४७ ॥

पुष्पं धूपं च गन्धं च उपचारांस्तथापरान् ।
घ्रात्वा निवेद्य देवेभ्यो नरो नरकमाप्नुयात् ॥ ४८ ॥

न भूमौ वितरेद्धूपं नासनेन घटे तथा ।
यथा तथाधारगतं कृत्वा तद्विनिवेदयेत् ॥ ४९ ॥

रक्तविद्रुमशालौ च सुरथः सूरलस्तथा ।
सन्तानको नमेरुश्च कालागुरुसमन्वितः ॥ ५० ॥

जातीकोषाद्यसंयुक्तो धूपः कामेश्वरीप्रियः ।
त्रिपुरायायास्तथैवायं मातृणामपि नित्यशः ॥ ५१ ॥

सर्वेषां पीठदेवानां रुद्रादीनां च पुत्रक ।
एष वां कथितो धूपः शृणुतं नेत्ररञ्जनम् ॥ ५२ ॥

येन तुष्यति कामाख्या त्रिपुरा वैष्णवी तथा ।

....

चतुर्वर्गप्रदो धूपः कामदं नेत्ररञ्जनम् ।
तस्माद् द्वयमिदं दद्याद्देवेभ्यो भक्तितो नरः ॥ ६१ ॥"

The above discourse on the use of धूप in religious worship may now be compared with the following section called धूपभोग[14] in the मानसोल्लास of the Cālukya King Someśvara (*c. A.D.* 1130):—

"अधुना धूपभोगोऽयं वर्ण्यते सौरभोत्कटः ।
लाक्षा गुग्गुल कर्पूर रालकुण्दुरुसिल्हकम् ॥ ६७ ॥

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13. Cf. the use of incense in Egyptian sacrifice as illustrated by a wall-painting in the *Tomb of Two Sculptors* (*about* 1400 B.C.). *No 92—A sacrifice to the Gods*—Neb Amun accompanied by his mother, Thepu, pours *oil of incense* over *braziers* filled with offerings, among which hot coals have been scattered, thus causing the oil to be ignited. The flames are to be seen against the papyrus mat which holds the four jars of ointment. A formula records the presenting of *incense* and *sacred gum* to *Amun*, *Osiris*, *Anubis* and other deities. A servant assists the performance of the ceremony. (See pp. 34-35 of *Egyptian Wall-paintings from Tombs and Palaces of the XVIII and XIX Dynasties* (1600-1200 B.C.) Metropolitan Museum of New York, 1930).

14. *Vide Manasollasa*, G.O.S. *Baroda*, 1939, Vol. II, pp. 144-145.

श्रीखण्डं दारु सरलं लघुकोष्ठं च वालकैः ।
मांसीकुङ्कुमपथ्या च (श्च) कस्तूरीवृतिबीजकैः ॥ ९८ ॥

शङ्खनाभिनखैश्चैव सितामधुघृतं गुडः ।
समान्येतानि चूर्णानि द्रवद्रव्यं विहाय च ॥ ९९ ॥

द्विगुणं लघुकर्पूरं चूर्णधूपोऽयमुत्तमः ।
एतान्येव हि श्लिष्टेन मिश्रयेन्मधुसर्पिषा ॥ १७०० ॥

गुडेन पिण्डयेत्तस्मात् पिण्डधूपो वरो मतः ।
द्रव्याण्येतानि तोयेन पिष्टानि मधुसर्पिषा ॥ १ ॥

वर्तिरूपाणि शुष्काणि वर्तिधूपो मनोहरः ।
रीतिरूपमयो वापि सुवर्णघटितोऽथ वा ॥ २ ॥

खगो वाऽपि मृगो वाऽपि सरन्ध्रः सम्पुटात्मकः ।
अङ्गारगर्भिते (तो) पिण्डेनान्वितो धूपमुद्गिरेत् ॥ ३ ॥

मुखकर्णादिभिश्छिद्रैः पिण्डधूपे स्वयं क्रमः ।
अङ्गारगर्भिते पात्रे चक्रवक्त्रेण संयुते ॥ ४ ॥

विकिरेद्धूपचूर्णं तद्वारं वारमिति क्रमः ।
ताम्रेण रचिते श्लक्ष्णे सुपात्रे बहुखण्डकैः ॥ ५ ॥

दण्डेन वा समायुक्ते धूपने सुषिसंयुते ।
सूचिकाग्रे विनिक्षिप्य वर्तिं सन्धुक्ष्य वह्निना ॥ ६ ॥

स्थगयेत्सम्प (म्पु) टेनाथ रन्ध्रैर्धूपो विनिःसरेत् ।
ऊर्ध्वं दण्डसंयुक्तं पाणिना परिवर्त्तयेत् ॥ ७ ॥

आत्मनोऽपि मुखं क्वापि प्रेयसीवदनेषु वा ।
करण्डकमदण्डं तु धूपवर्त्तिसमन्वितम् ॥ ८ ॥

अंशुकान्तं क्षिपेद्वापि खोम्पके वाऽपि निक्षिपेत् ।
धूपयेत शुभां शय्यां वसनेनावगुण्ठिताम् ॥ ९ ॥

पञ्चकैर्धौतवासांसि पिण्डकैश्चूर्णकैरपि ।
गृहं च पिहितद्वारं निरोधितगवाक्षकम् ॥ १० ॥

धूपयेद्बहलैर्धूपैः पिण्डधूमसमुद्भवैः ।
विलासचतुराणां हि नृपाणां च विनोदिनाम् ॥ ११ ॥

धूपभोगोऽयमाख्यातः सोमेश्वरमहीभुजा ।
भूलोकमल्लदेवेन धूपभोगोऽयमीरितः ॥ १२ ॥”

The *Gandhasāra* of Gaṅgādhara states that the *Gandhaśāstra* or science of cosmetics and perfumery contributes to the pleasures of kings (राज्ञां तोषकरम्). This remark is substantiated by the above section on धूपभोग composed by a king himself who expressly states that it is meant for royal use (विलासचतुराणां हि नृपाणां च विनोदिनाम् । धूपभोगोऽयमाख्यातः etc.).

While the sections on *Gandhayukti* in the *Viṣṇudharmottara* and the *Agnipurāṇa* describe the manufacture of cosmetics and perfumery, the extracts from the *Kālikāpurāṇa* and the *Mānasollāsa* (*c. A. D.* 1130) illustrate the use of perfumes in sacred and secular spheres of Hindu life in medieval India (*between A. D.* 600 *and* 1300). Before we attempt a treatise on the history of Indian *Gandhaśāstra* it is necessary to exploit fully all available sources which contain references to the *Gandhaśāstra* either on its technical or cultural side. My own studies in the history of the *Gandhaśāstra* so far published have been designed with a view to providing enough material to other scholars who want to pursue this subject further on the strength of new sources, either Sanskrit or non-Sanskrit. The identification of the several aromatic ingredients mentioned in the texts on the *Gandhaśāstra* will have to be studied both from the technical and historical points of view, but I must leave this subject to more competent students of this subject than myself. My own interest in this subject is purely historical and cultural.

10. Studies in the History of Indian Cosmetics and Perfumery

Some Recipes about Perfumes and Cosmetics in the Gandhavada Section of the Rasaratnakara of Nityanatha Siddha (13th Century A. D.)*

During the last two years I have published some papers[1] on the history of *Gandhaśāstra*. In these papers I have made an attempt to collect together some texts pertaining to the use and manufacture of cosmetics and perfumes from different sources, early or late. I propose in this paper to add some new material on this subject to what I have already recorded in my papers. This new material is found in a work on alchemy (*rasa-vidyā*) called the *Rasaratnākara* assigned by scholars to the 13th century A.D. My friend Rajavaidya J. K. Shastri published in 1940 an edition of the *Vādi-khaṇḍa* (also called ऋद्धिखण्ड—"वादिखण्डे ऋद्धिखण्डापरनामके"). Chapter 9 of this *Khaṇḍa* (pp. 159-171) deals with the manufacture of *ratnas*[2] (jewels) and cosmetics (gandhavāda) as stated in the following opening verse of the chapter :—

"संसारे सारभूतं सकलसुखकरं सुप्रभूतं धनं वै
तत्साध्यं साधकेन्द्रैर्गुरुमुखविधिना बध्यते तस्य सिद्धये ।
रत्नादीनां विशेषात्करणमिह शुभं गंधवादं समग्रं
ज्ञात्वा तत्तत्सुसिद्धं अनुभवपथगं पावनं पंडितानाम् ॥ १ ॥

Nityanātha, the author of the *Rasaratnākara*, tells us in the above

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Jour. Ganganath Jha Research Institute, pp. 203-209.

1. Vide *Jour. Bombay University*, September, 1945, pp. 44-52; *New Indian Antiquary*, Feb.–March, 1945, pp. 185–193, *Adyar Library Bulletin*, Vol. IX, Part 4, 1945, pp. 143–151; *Bharatiya Vidya*, July-Aug. 1945, 149–156; *Jour. Ganganatha Jha Research Institute*, May-Aug., 1946, pp. 279-294.

2. According to *Trailokyaprakaśa*, a work on astrology of the 13th Century by Hemaprabha Sūri, the *Sun* (भानुमान) is the presiding planet for *ratnas* and *Jupiter* (बृहस्पति) for cosmetics and perfumes :—

—"मणिमुक्ताप्रवालरत्नादीनां नायकस्तु भानुमान् ।" verse 39

—"श्रीखंडागुरुकर्पूरकस्तूर्यामोदिवस्तुनः ।

स्वामी बृहस्पतिर्ज्ञेयो लग्नतत्त्वविदः पुनः ॥" verse 40 (Vide p. 9 of त्रैलोक्यप्रकाश, ed. by R.S. Sharma, Lahore, 1946).

verse that plenty of wealth (*dhana*) is the essence of life as it bestows all happiness. For acquiring this wealth he is explaining in the present chapter the necessary means, viz., the knowledge of the manufacture of *ratnas* (jewels or precious stones) and cosmetics and perfumes (*gandhavāda*).—Verily these remarks are true for all times as the professions which deal with the sale and manufacture of these luxuries of human life have been most lucrative, as vouched by historical records. Articles of jewelry have a fabulous value, as also cosmetics and perfumery. The observation of the *Pañcatantra* viz.

"पण्यानां गान्धिकं पण्यं किमन्यैः काञ्चनादिभिः ।
तत्रैकेन च यत्क्रीतं तच्छतेन प्रदीयते ॥"

states that of all trades the trade in perfumery is the best, because in it what one has purchased for one (rupee) can be sold for hundred (rupees).

The chapter then describes the processes of manufacturing such *ratnas* as पद्मराग, इन्द्रनील, मरकतमणि, गोमेदमणि, पुष्पराग, नीलमाणिक्य, मुक्ताफल, and प्रवाल, (verses 1—37). Subsequently verses 38—88 are devoted to the manufacture of हिंगूल, सिंदूर, सैंधव, सुवर्चल, हिंगु, वंग, अम्लवेतस, मषी (ink)[3] and घृत. Verses 89—131 deal with the preparation of cosmetics and perfumes. They are as follows :—

Page 167 (1) चन्दनकरणम् (Preparation of *Sandal*)

—"संछेद्य निंबवृत्तं तु हस्तैकं रक्षयेदधः ।
तस्य मूर्ध्नि बिलं कुर्यात्तत्रैव नवगुग्गुलुम् ॥ ८९ ॥
पूरयेत्तेन काष्ठेन बिलं रुध्वाथ लेपयेत् ।
संधिं मृल्लवणेनैव शुष्कं गजपुटे पचेत् ॥ ९० ॥
स्वभावशीतलं ग्राह्यं तन्मूलं चन्दनं भवेत् ॥ ९१ ॥

(2) कर्पूरकरणम्[4] (Preparation of Camphor)

—"पलत्रयं पचेद्भक्तंसम्यग्राजान्नतंदुलम् ।
तद्भक्तं शीतलं कृत्वा गवां क्षीरैः प्रयत्नतः ॥ ९२ ॥
निष्कमात्रं च कर्पूरं क्षिप्त्वा तस्मिंश्च पेषयेत् ।
शुष्कस्य वंशनालस्य स्थूलस्य तेन चोदरम् ॥ ९३ ॥

3. I have recorded this important *recipe of ink* (for writing on *Bhūrja* and palm-leaves) in my paper on the history of Ink-manufacture in India and other countries, like China, Japan, Egypt, Rome etc. (See *Prācyavāṇī* Calcutta, Vol. III, October 1946).

4. "कर्पूरकरणी" is described on *folio* 32 b of the B. O. R. Institute MS of गंधवाद with Marathi Commentary (in Raddi collection).

केश्यमंगुलमात्रेण छागाद्युक्तं च कारयेत् ।
छित्वाथ कस्तूरीपुच्छं तन्निर्यासेन पूरयेत् ॥ ९४ ॥
बंधनार्थं पुनर्वस्त्रे द्वे बद्ध्वा च तन्मुखम् ।
जायते सिद्धिनं कोष्णं भूगर्भे निखनेत्ततः ॥ ९५ ॥
मिक्ताद्यात्वमुद्धृत्य शोषयित्वा समाहरेत् ।
कर्पूरं तस्य गर्भस्थं रक्षेत्कर्पूरभाजने ।
कर्पूरं जायते दिव्यं यथाबीजं न संशयः ॥ ९६ ॥"

(3) मद्यादीनां कस्तूरीकरणम्[5]
—"पनसस्याथवाम्रस्य बीजान्येकस्य कारयेत् ।
मद्यभाण्डे विनिक्षिप्य निष्कं युंजीत तथा ॥ ९७ ॥
चूर्णयित्वा क्षिपेत्तस्मिन् तत्सर्वं द्रवतां व्रजेत् ।
तेन घृष्ट्वा क्षिपेत्तस्मिन् कस्तूरीनिष्कं च चन्दनम् ॥ ९८ ॥
मृत्स्नो पात्रे वा काचपात्रे रक्ततां गतम् ।
तच्छीतलं काचपात्रे क्षिप्त्वा तस्योपरि क्षिपेत् ॥ ९९ ॥
चंपकं केतकी मल्ली जातीपुष्पाणि तत्पुनः ।
क्षिप्तं शुभ्रपटे बद्ध्वा मुखं तस्यैव रक्षयेत् ॥ १०० ॥
ततः पुष्पाणि संत्यज्य कस्तूरीं माषमात्रकाम् ।
माषैकं शुभ्रकर्पूरं तस्मिन्नेव विनिक्षिपेत् ॥ १०१ ॥
निक्षिपेद्धि शतांशेन गन्धजातादिकामपि ।
तत्सर्वं मथितं पूर्वं गंधजातादिभाजने ॥ १०२ ॥
वेष्टयेन्मल्लिकापुष्पैस्तद्भांडं दिवसत्रयम् ।
उत्तमं भवति जातिवर्णे परिमलेऽपि ॥ १०३ ॥"

Page 168 (4) कस्तूरीकरणम्[7]
—"मधूकतैलं तैलं वा तिलोत्थं पलपंचकम् ।
कुसुमोद्भवं दशपलं सर्वमेकत्र योजयेत् ॥ १०४ ॥
मल्लिका, मालती, जाती, केतकी, शतपत्रिका ।
अन्यानि च सुगंधीनि पुष्पाणि तत्र निक्षिपेत् ॥ १०५ ॥

5. See "जवादिची करणी" on folio 32b of B. O. R. I. MS of the गन्धवाद.

6. See my paper on the Use of *Kaca* (glass) vessels in Indian pharmacy between A.D. 1100 and 1850 in *Bharatiya Vidya*—(Nov.-Dec., 1946) pp. 147—160.

7. See "कस्तुरीची करणी" on folios 31 and 32 of the MS of गन्धवाद (B.O.R. Institute).

दिनैकं मुद्रितं रक्षेत् पुष्पं निष्पीड्य संत्यजेत् ।
सिक्थकं विंशतिर्निष्कान् क्षिप्त्वा तस्मिन्पचेच्छनैः ॥ १०६ ॥

यावत्तैलावशेषं स्यात् कर्पूरं चार्धनिष्ककम् ।
निष्कं मार्जारजावादि क्षिप्त्वा तदवतारयेत् ॥ १०७ ॥

अन्यपात्रे विनिक्षिप्य शीतलं तत्पुनः पचेत् ।
क्षणमात्रात्तदुत्तार्य क्षिपेज्जावादि भाजने ॥ १०८ ॥

सांद्रं भवति तत्सर्वं यथाबीजं न संशयः ।
पुष्पाणि बकुलस्यैव रत्नमाला समं समम् ॥ १०९ ॥

तच्चूर्णमिक्षुदंडस्य कृतनालस्य चोदरे ।
क्षिप्त्वा तस्य मुखं रुध्वा तन्मज्जाभिर्मृदा पुनः ॥ ११० ॥

पुटेत्तृणाग्निना तावद्यावद् गंधो न दह्यते ।
द्रुतानि तानि पुष्पाणि मुखं भित्वा द्रवं हरेत् ॥ १११ ॥

कस्तूरीचर्म निर्लोम मुस्ताचूर्णं विचूर्णयेत् ।
चूर्णस्य दशमांशेन सम्यक् कस्तूरिकां क्षिपेत् ॥ ११२ ॥

पूर्वद्रावेण तत्सर्वं पेषितं गोलकीकृतम् ।
कस्तूरी मदनाकारा किंचित्कार्या प्रयत्नतः ॥ ११३ ॥

तत्सर्वं छायया शोध्यं मदना रक्षयेत्पृथक् ।
गुटिकाः खण्डशः कृत्वा मदनैः सह मिश्रयेत् ।
कस्तूरीचर्मणा बध्वा सम्यक्मृगमदो भवेत् ॥ ११४ ॥"

Page 169 (5) कुंकुम[8]करणम् (i)

—"नारिकेरकपालं वा घृष्टं वा निम्बकाष्ठकम् ।
यत्किंचिच्छुभ्रकाष्ठं वा तोयेन सह कारयेत् ॥ ११५ ॥
तत्पादं रजनी चाथ तस्मिन्मध्ये विनिक्षिपेत् ।
गैरिकं वा रजन्यर्धं तत्सर्वं कुंकुमं भवेत् ॥ ११६ ॥"

—कुंकुमकरणम् (ii)

—"पाषाणपुष्पजं क्वाथं घर्मे धार्यं तु खर्परे ।
विंशत्यंशं क्षिपेत्तस्मिन् पेषितं शुभ्रतंडुलम् ॥ ११७ ॥

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8. The three recipes for the preparation of *Kuṅkuma* are important as they show the ingredients from which *Kuṅkuma* (Marathi कुंकू) of reddish colour was prepared in the 13th century for the use of Hindu married women. Elsewhere I have not come across any recipes for *Kuṅkuma* used by married women in the form of red spot on their foreheads as a sign of *Saubhāgya*. I propose to write a paper on the history of *Kuṅkuma-tilaka* for which I have collected some material.

तंडुलार्ध तथ चुन्नं सर्वं काष्ठेन लोलयेत् ।
घनीभूतं भवेद्यावद्यावत्तावद् घर्मे प्रचालयेत् ।
ततस्तेनैव वटिकाः कृत्वा स्युः कुंकुमोपमाः ॥ ११८ ॥"

—कुंकुमकरणम् (iii)

—"पाषाणपुष्पपाषाणं सम्यक् शुभ्रं च तंडुलम् ।
पिष्ट्वाथ वटिकाः कार्या शोष्या स्युः कुंकुमोपमाः ॥ ११९ ॥"

Page 169 (6) दिव्यधूपः[9] (i)

—"क्रमात्तगुणं कुर्यात्कस्तूरी शशिकुंकुमम् ।
नखमांसीसर्जरसं मुस्ता कृष्णागुरुः सिता ॥ १२० ॥
चंदनं च दशैतानि चूर्णितानि विमिश्रयेत् ।
चूर्णं तुल्यैर्गुग्गुलुभिः सर्वमेकत्र कुट्टयेत् ॥ १२१ ॥
स्तोकं स्तोकं क्षिपेत्तैलं शिलायां लोहमुष्टिना ।
दिनमेकं प्रयत्नेन वर्तिका तेन कारयेत् ॥ १२२ ॥
तदग्निज्वलितं कुर्याज्ज्वालां निर्वाप्य तत्क्षणात् ।
देवानां विश्वधूपोऽयं मंत्राणां साधने हितः ॥ १२३ ॥"

—दिव्यधूपः (ii)

—"पाषाणभेदचूर्णं तु गुग्गुलुं च पलं पलम् ।
मांसी मुस्ता नखं बोलं चंदनागुरुवालकम् ॥ १२४ ॥
लाक्षागुरुं सर्जरसं सिताकर्पूरसंयुतम् ।
प्रति निष्कद्वयं चूर्ण्यं कस्तूरी कुंकुमं तथा ॥ १२५ ॥
मापैकैकं क्षिपेत्तस्मिन् सर्वं कुट्यादुलूखले ।
तिलतैलं क्षिपेत्किंचिल्लोहदण्डेन तद् दृढम् ॥ १२६ ॥
यामेकं कुट्टयेत्सिद्धो दिव्यो धूपः शिवोदितः ।
देवादेवाकरो देयः पूर्ववद्वर्तिकीकृतः ।
सर्वसौभाग्यजनकः सर्वमंत्रौघनायकः ॥ १२७ ॥"

Page 170 (7) पुष्पद्रुतिः

—"वज्रीक्षीरेण संयुक्तं शुद्धं वस्त्रं पुनः पुनः ।
आतपे शोषितं कुर्यादित्येवं दिनसप्तकम् ॥ १२८ ॥
जातीपुष्पफलैकं तु निष्कं चूर्णितटंकणम् ।
चौरं निष्कत्रयं योज्यं सर्वमेकत्र लोलयेत् ॥ १२९ ॥

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9. See "धूपाची करणी" on folios 45—47 of "गन्धवाद" (B.O.R.I. MS)

मृत्पात्रे धारयेद् घर्मे रथ्ये वा काचभाजने।
आच्छादयेत्तु वस्त्रेण जलसिक्तेन तत्क्षणात् ॥ १३० ॥

द्रवंति तानि पुष्पाणि युंजयाद्योगेषु तद्द्रवम्।
अनेनैव प्रकारेण पुष्पाणां च पृथक् पृथक्।
द्रुतिः कार्या सुगंधानां गंधवादेषु योजयेत् ॥ १३१ ॥"

Verses 132 to 139 deal with धान्यवृद्धिकरणम् and द्रव्यादिवृद्धिकरणम्. The concluding verse 140 reads as follows :—

Page 171 —"आदौ सर्वदिशांतरेषु गमनं कृत्वा गुरोः संमुखात्
प्राप्तं भक्तिबलेन युक्तिविधिना सारातिसारं महत्।
तत्सर्वं धनवर्धनं निगदितं भूयिष्ठमध्वा (?) क्वचिद्
भूपानां विदुषां महामतिमतां विद्वान्भवेत्सज्जनैः ॥ १४० ॥"

The foregoing recipes of several cosmetic preparations described in detail are not imaginary, though they appear in a work on alchemy, which contains some mixture of fact and fiction. The experts in *rasa-vidyā* in mediaeval times, known as *Siddhas* did possess a supernatural bent of mind. In spite of this bent they were deeply interested in experiments of all kind in their search for gold. The cosmetics described in the recipes of Nityanātha Siddha are real and not miraculous though we might notice in these descriptions a tendency to attach miraculous properties to actual preparations, which gave comfort to the users of these cosmetics on account of their aromatic ingredients. Those who are interested in the industrial side of these recipes may try them and see if they have any value to-day. Whatever be their present worth they really have a distinct place in the history of Indian *Gandhaśāstra.*

The term "गन्धवाद" used by Nityanātha in verse 1 (गन्धवादं समं) and verse 131 (गंधवादेषु योजयेत्) is noteworthy. Of the two treatises on *Gandhaśāstra* discovered by me one is called "गन्धवाद" or a manual of *Gandhaśāstra* which records the several recipes for preparing cosmetics and perfumes.

11. Some Sanskrit Verses regarding the Manufacture of Rose-Water

Found in a Manuscript of the Bhojanakutūhala Dated Śaka 1773 (=A.D. 1851)*

The *Bhojana-Kutūhala*[1] of Ragunātha Gaṇeśa Navahasta (*1st Pariccheda*) contains a section on the properties of different waters. This is called पानीयवर्गं. There are 3 MSS of this *1st Pariccheda* before me for comparison viz. (1) MS belonging to Rajavaidya Jagtap of Kolhapur dated *Śaka 1773* or A. D. *1851*, (2) another MS from Jagtap collection belonging to Śāmji Nāyak Puṇḍe (*c.* A.D. 1680) and (3) a MS dated A.D. 1803 - No. 594 of 1899-1915 in the Govt. MSS Library at the B.O.R.Institute, Poona. The पानीयवर्गं referred to above is found in all these MSS. but the following extract called the "गुलाबोदकप्रकरण" or a section dealing with rose-water is found only in the first of the above copies of the work dated A.D. 1851. Presumably this extract is a later addition to Raghunātha's *Bhojanakutūhala* made by some one between A.D. *1803* and *1851*.

The extract under reference is found on folio *57a* inserted between the sections pertaining to "नारिकेल गुणाः " and "उषःपानादिगुणाः ". It reads as follows :—

"अथ गुलाबोदक[2] प्रकरणं तत्कारणं च
कुडवं शतपत्राणां विहृतं तत्र निक्षिपेत् ।
जल सप्तपलं पात्रे रौप्ये वंगं सुसंस्कृते ॥
ताम्रजे वाथ तस्योर्ध्वं दोलायंत्रे[3] निवेशयेत् ।

Poona Orientalist, Vol. VIII, Nos. 1 and 2, pp. 1-8.

1. Vide my papers on this work and its author in *Journal of Bombay University*, X (New Series) Part 2, 1941 ; *Annals* (B. O. R. I.) XXII, 1942, pp. 254-263 and *Journal of Tanjore MSS Library*, Vol. III No. 2.

2. The word "गुलाब" means "*rose-water*". Ragbunātha Paṇḍita in his राजव्यवहारकोश III, 14 refers to गुलाब as "मकरंदो गुलाबः स्यात्". Evidently he understood "गुलाब" to mean "*rose-water*". In the extract quoted above the word "गुलाब" means the *rose-flower* and "गुलाबोदक" means "*rose-water*". Raghunātha Paṇḍita composed the above lexicon by order of Shivaji the Great about A.D. 1676.

3. For a picture of दोलायंत्र Vide Plate II (10)—page 144 of *Aryan Medical Science* by Thakore Sahib of Gondal, London, 1896.

रौप्यपात्रे तदूर्ध्वं तु पश्चाद्रौप्यशरावया ॥
आच्छाद्य तन्मुखं रुध्वा समंतात्पाचयेच्छनैः ।
मृद्वग्निना मुहूर्तं तु पश्चादुद्धृत्य तज्जलम् ॥
रौप्यपात्रस्थितं विद्यात्पुष्परसोत्तरः ।
सुशीतलः सुगंधश्च ग्रीष्मे वर्षात्यये तथा ॥
राज्ञां दाहप्रशांत्यर्थं गुलाबपरमाभिधः ।
पुष्पद्रवः सुरभिशीत कषायगौल्यो[4]
दाहभ्रमार्तिवमिमोहमुखामयघ्नः ।
तृष्णार्ति क (?) पित्तकफदोषहरः सरश्च
संतर्पणं चिरमरोचकहारकश्च ॥"

When I found these verses in this MS of A.D. 1851 I was convinced of their interpolated character but as no such verses have been found in any medical or allied works I wanted to publish them after making inquiries of Vaidya Gaṅgādhara Śāstri Gune of Ahmednagar if he had come across similar verses on the manufacture of rose-water in texts early or late. Vaidya Gaṅgādhar Śāstri replied in the negative. I am, therefore, publishing these verses with a request to other scholars to publish any other verses of this type if they are discovered hereafter. It may turn out that these are the only verses on the manufacture of rose-water so far found and hence they have their place in a historical study of the rose-flower in India to which I intend to devote a special paper in the near future.

I am unable to determine the authorship of the extract pertaining to the manufacture of rose-water as found in a MS of A.D. **1851**. It seems, however, that Vaidya Raghunathji Indraji alias Katābhaṭ was acquainted with the above extract or a portion of it, as will be seen from the following passage on p. 452 of his **निघंटु संग्रह** published on 10th March **1893** at Junagad :—

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4. Vide p. 181 (**स्वस्थवृत्तपरिशिष्ट**) of *Aṣṭāṅga Saṁgraha* (Sūtrasthāna) ed. by R. D. Kinjavadekar, Poona, 1940. Here Pt. Kinjavdekar quotes some verses (from the **क्षेमकुतूहल** of **क्षेमशर्मन्**—(C.A D. 1550) under **पुष्पादिधारणम्** in which the word **गोलाल** is used perhaps for rose-flower, verse 34— "**श्रीखण्डं चैव गोलालं**" and verse 39— "**गोलालं चम्पकं पुष्पं वाल्लभ्यकरं परम्**".

"अथ पुष्पवर्गः...॥ अथ फलनो अर्क गुलाबजल आदिनां नाम ॥
पुष्पद्रवः पुष्पसारः पुष्पस्वेदश्च पुष्पजः ।
पुष्पनिर्यासकश्चैव पुष्पाम्बुश्च षडाह्वयः ॥
॥ गुणाः ॥ पुष्पद्रवः सरः शीतस्तु वरः श्रमदाहहा ।
शांतितृटपित्तरोगघ्नो मुखरोगविनाशनः ।
ग्रंथांतरे ॥ पुष्पद्रवः सुरभिशीतकषाय गौल्यो
दाहश्रमार्तिवमिमोहमुखामयघ्नः ।
तृष्णार्तिपित्तकफदोषहरः सरश्च
संतर्पणश्चिरमरोचक हारकश्च ॥"

The last verse of the above extract is identical with the last verse of the previous extract regarding rose-water. As Vaidya Katabhat merely introduces it with the remark "ग्रंथांतरे" I am unable to state the source from which he has quoted it in his book published 42 years after the Jagatap MS of the भोजनकुतूहल. Evidently the process of extracting rose-water given in the extract under reference shows that the author of the extract was thoroughly familiar with it. The rose-flower appears to have become popular in the Deccan during the Peshwa period of the Maratha history. In a poem[1] composed by Bhagavantrao Yadava in praise of Nanasaheb Peshwa we find the following verse containing a reference to गुलाब :—

"होती फार गुलाब चंपक तरू अरविंदही सेविती ।"

In spite of the increasing acquaintance of the Poona court with the rose-flower in the 18th century it is doubtful if any quantity of rose-water was manufactured for court use in the first half of the 18th

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1. See p. 152 of *B I S. Mandal Itivrtta* (1915)—Note on "७५ पेशव्यांच्या स्तुतिपर काव्य" by P. N. Patvardhan (pp. 146-154). This poem consists of 54 stanzas in Marathi. It was composed by Bhagvantrao Yadava, whose great grandson Mr. Narayanrao Madhavrao, Jahagirdar of Chincholi (District Aurangabad) showed it to Mr. P. N. Patvardhan. Tryambak, the son of Bhagvantrao Yadava, was killed at the battle of Kharda.—The poem refers also to रामफल, सीताफल, अंजीर etc. (p.152).

In the list of flowers and fruits recorded by Saint Ramadasa in his बागप्रकरण I find no mention of rose-flower. He mentions "गुलखत" among flowers and fruits such as "पोपये", "पंचोळ", "सेताफळ", "अननस" all of which are late additions to Indian *materia medica*. (Vide pp. 627-628 of रामदासाचे समग्र ग्रंथ, ed. by G. G. Gondhalekar, Bharatbhusan Press, Poona, 1906).

century. In fact we find Raja Shahu[6] writing to Kanhoji Angre on *13th April 1723* ordering him to supply *candles* and *gulab* (rose-water) for his own use. This reference seems to suggest that rose-water of local manufacture was not available at least in quantities sufficient to meet the court needs of Shahu who, having been brought up at the Mogul court, was fond of rose-water. The rose-water was a fashionable article of luxury at the Mogul court since Baber's time and its importation by sea and land into India is often noticed in contemporary records of foreign traders in the 16th and 17th centuries.[7]

It is difficut to find references to the use of *gulab* and its products in Sanskrit works on Indian *Materia Medica* composed even after the Mogul advent in India. I may, however, note here some uses of the rose-flower and its products as found in a work on medicine represented by two MSS,[8] one dated A.D. 1787 and the other dated A. D. 1824. This work is called

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6. Vide letter No. 51 (Peshwa Daftar Selection No. 8) dated 13-4-1723— Shahu ordered Kanhoji Angre to procure for him (possibly from the British) 750 candles and *gulab* or rose-water in 20 bottles supplied to Kanhoji. The weight of the candles ordered was "सवा सात मण पाच सेर" as stated in this letter. In letter No. 52 (A.D. 1715 ?) Shahu ordered from Kanhoji 100 bottlesof rose-water (१०० गुलाब सिसे), 400 candles and तंबाखू or tobacco of *Surat* and *Bagdad*.

7. Vide p. 142 of *Supplementary Calendar of Documents in the India Office* (1600-1640) London, 1928—12th January 1639—The ship *Diamond* arrived from Persia with *rose-water* etc.

8. One of these MSS is deposited in the library of the Rajawade Samshodhan Mandir, Dhulia. It is described by Vaidya Bindu Madhava Pandit in the भिषग्विलास (September 1942) pp. 225-228.

This MS begins :—

"श्रीगणेशाय नमः ॥ श्रीसरस्वत्यै नमः ॥ अथ वेदशास्त्र हकीम फराशीस नाम सुतविरचिते वाहदक रसुलपुराणे नामह ॥ अथ रितुविचार लिष्यते"

It ends :-

"इति श्रीवेदक समापता संवत मासे लिषतं ॥ शके १७०९ ॥ माहे पोष ॥ श्लोक प्रमान संख्या साडे तीन हजार पत्र संख्या एकशे एकूण हजर ॥ पुस्तक वेदक संपूर्ण ॥"

Thesubjectsof the 13 Chapters are :

I—ऋतुविचार, मूत्रपरीक्षा, नाडीपरीक्षा ; II—विरेचनकल्प ; III—आसव ; IV—गुटिका ; V—अर्क ; VI—Uses of mixtures against diseases ; VII—काढा ; VIII—चूर्ण ; IX—गुटिका (bigger type) ; X—चटनी and पाक ; XI—सिद्धतेल, स्नेह etc. ; XII—मलम ; XIII—रसायन.

हकीम फरासिस and consists of 13 Chapters. In Chap. III, which deals with the काढ्यां i.e. decoctions or extracts, there is reference to the गुलाब flower. Again in Chap. V. which deals with अर्क्s, the गुलाब flower is referred to. It is also found in Chap. X dealing with चटनी and पाक.

I have taken the above references from the description of the Dhulia MS of the work as given by Vaidya Bindu Madhava Pandit of the Āyurvedāshram, Ahmednagar. According to Mr. Pandit the language of this work is a mixture of Sanskrit, Prakrit, Hindi, Urdu, Marwadi, Gujarati and other languages and dialects. Perhaps the MS would be useful for the students of the history of Indian linguistics as the MS is dated A. D. 1787, which suggests that the work was composed earlier than this date.

Another MS[9] of the work has been recently acquired by the B. O. R. Institute. It is dated A. D. 1824. It contains the following references to गुलाब फूल and गुलाबअतर[10] :—

Fol. 11ᵃ "लेना ता मे गुलाब का अतर मासे ३"

Fol. 12ᵃ "गुलाब के फूल सेर पाच फुल नहि होए
तो चोखो गुलाब के अतर मासे ८ ॥
"गुलाब फूल सेर १ वा अतर मासे ६ ॥

Fol. 19ᵇ "गुलाब को पानी"

Fol. 21ᵇ "गुलाब पाव भर"

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9. This MS. is on paper (Size :—8"×4") and contains 32 folios (about 11 lines per page and 44 letters each line). It begins :—

"श्रीगणेशाय नमः ॥ लिखतं फिरंगी फरासीसा हकीमी ॥ अथ वैद्यकशास्त्र इंग्लसपुरा (वा) रे हकीम फरासीसने करी ॥ भाषा बहुत सीचाही केकरी ॥ प्रथम च्यारो ऋति वर्णन ॥ चैत्र वैशाख ज्येष्ठ तीन पाताल स्थान ॥" etc.

It ends :—

"इतिश्रीखुल ग्रंथे इतुल सीव हकीम फरासीस विरचीतं फिरंगी हकीम अर्इजुलकुन्त् कीताब हकीमी की संपूर्ण ॥ शके १७४६ तारणनाम संवत्सरे मार्गशीर्ष वद्य १० दशमी सौम्यवासरे हकीमी ग्रंथ समाप्त : ॥ ६ ॥ ॥ ॥ "

10. On *4th September 1754* "अत्तर गुलाबी" was used to honour a descendant of the celebrated singer Tānsen (Vide p. 99 of *Peshwa Dafter 22)* while on *10th February 1768* Gopikābai Peshwa sent some betel nuts to Daulatābād to get them scented with rose (Ibid, p. 114—"सुपाऱ्यागुलाबी वासाच्या करवावयाकरितां.")

Fol. 22[a] "गुलाब को अतर तोला १"

Fol. 22[a] "गुलाब पाव कदाई मोहारी के गुलाबजद को" etc.

(Fol. 25[a]—"कागदी नींबु")

A MS of the present work dated A. D. **1878** has been described on pp. 71 and 302 of the catalogue[11] of Hindi MSS by S. S. Das who gives no information about the date of the work or its author.

We have noted in the foregoing discussion 4 MSS in all of the work हकीम फरासीस out of which three are dated A. D. **1787, 1824** and **1878** respectively. The Dhulia MS of the work is the earliest dated MS of the work so far discovered and hence important.

Another MS belonging to the B. O. R. Institute of a work called चूर्णपक्वं (प्रकरण) is dated A. D. **1849** (Saṁvat 1905, Śaka 1771). It refers to the preparation of *gulkand* by the use of sugar-candy, rose-flowers, saffron etc. as follows :—

Fol. 14[b] "गुलकंद करणें ॥ साकर तुरा १ खडीमिश्री १ गुलाब फूल व केशर ॥ ६ ॥ चूर्णं ॥"

The foregoing references to the use of the *gulāb* flower in the Indian *materia medica* though introduced very late show clearly its growing popularity in India.

I shall close this short paper on the Sanskrit verses regarding the manufacture of rose-water by the following usages of the term गुलाब in the sense of *rose-water* and *rose-flower* found in the work of the celebrated Hindi poet *Bihārī* (A. D. 1603-1663)[12] :—

Bihārī[13] in his सतसई refers to the use of *rose-water* in the following stanza :—

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11. *First Triennial Report on the Search for Hindi Mss* by Syam Sundar Das, Allahabad, 1912.

Page 70—"No. 166—फरासीसी हकीम. Nothing could be known about this author of medical books. The following work of his has been discovered" :—"अंजुलिपुराण —A treatise on Hindu system of medicine. The MS is dated 1878 A.D."

Page 302—166 (a)—अंजुलीपुराण by फरासीसी हकीम 130 leaves"—belonging to Kashi Prasad Saraf, Bijawar. Another copy is with G. S. Kavi of Datia.

12. Vide p. 538 of मध्ययुगीन चरित्रकोश by S. Chitrav, Poona, 1937.

13. Vide p. 51 of गाथासप्तशती (*Kavya Mala 21*) edited by Bhaṭṭa Mathurānātha, N. S. Press, Bombay, 1933—The Sanskrit explanations of Bihārī's stanzas are given by Bhaṭṭa Mathurānātha himself.

(विरहवर्णन)—

"औंधाई सीसी सु लखि विरह बरी बिललात ।
बीच हि सूखि गुलाब गो छींटो छु न गात ॥"

Explanation :—

"विरहसंतापमवलोक्य शीतलीकरणार्थं सख्या यावदेव पाटलासलिलस्य (गुलाब जल) काचकूपिका आवर्जिता तावदेव सर्वमेव जलं परिशुष्य लुप्तमभूत् बिन्दुरपि तद्गात्रे नास्पृशत् ॥ अहो संतापः ॥"

In the same poem Bihārī refers to the uses of *rose-flower* as follows :—

(शरीरसौकुमार्य)—

(१) "भभकत दिये गुलाब के भमा भमावत पाइ ।"

Explanation :—

"पाटलाकुसुमसहाय्येन शनैः शनैश्चरणौ ।
प्रक्षालयन्त्या अपि तस्याः हृदयं तत्कष्टशङ्कया बिभेति ॥"

(२) "पखुरी लगैं गुलाब की परि हैं अङ्ग खरौंट ।"

Explanation :—

"पाटलाकुसुमपत्रिकायाः स्पर्शेऽपि तव गात्रे विलेखनजं क्षतं भविष्यति ॥"

It would be interesting to record some usages[14] of the work गुलाब in other vernacular works of the 16th and 17th centuries in the manner of the Hindi poem of Bihārī.

I close this paper with a request to the students of the history of Indian medicinal science and other scholars to publish any Sanskritor vernacular texts pertaining to the manufacture of rose-water preferably prior to A. D. 1800.

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14. Vide p. 1138 of Proceedings of *Indian History Congress*, Calcutta, 1939. Mr. N. L. Ahmad describes the *rose-water festival* (*Eid-i-gulabi*) at the Court of Shah Jahan (A. D. 1628-1658) as follows :—

"*Eid-i-gulabi* (rose-water festival) one of the dainties of Court festivals, was celebrated with taste and elegance on the 13th of the Persian month Tir, which marked the commencement of the Rainy Season in India. The princes and the prominent nobles presented the Emperor with jewelled flasks containing *rose-water*, jujube tree flower juice and the aroma of orange flowers. The other courtiers made him offerings of enamelled, gold and silver flasks."

Evidently the *rose-water* used for the above festival was possibly that imported from Persia and other places outside India.

12. Recipes for Hair-dyes in the Nāvanītaka (c. 2nd Century A.D.) and their close Affinity with the Recipes for Ink-manufacture (after A.D. 1000)*

Recently I published a paper[1] on the History of Ink-manufacture in India, recording some recipes for *ink-manufacture*, the earliest of which belonged to the 13th Century A.D. In all these recipes I noticed the use of ingredients, herbal or metallic, used for giving the necessary colour to the ink. I now find that these recipes have a close affinity with the recipes for hair-dyes (Keśarāgāh) given in a text,[2] which is 1000 years earlier, if not more, than the Rasaratnākara of Nitya-Nātha-Siddha, who records the earliest recipe for ink, so far as I know. I propose, therefore, to record in this paper a *brief analysis* of the texts about *hair-dyes* of c. 2nd Century A.D. and compare it with that of the texts about ink-recipes (c. A.D. 1200 onwards) already recorded by me in my previous paper.

Chapter 10* of Nāvanītaka (Prakaraṇa II) reads as follows :—

" [...कर] व [ी] रक [ं] तिलतैलेन पाचयेत् ।
ना [न] स्याभ्यञ्जनयोगोय [ं] सिद्धः पलितनाशनः ॥ १ ॥
प्र [पु] एड [रीक.......... .... ।]
....॥ २ ॥

Bharatīya Vidya (Bombay, 1950), Vol. XI, pp. 40-48.

1. Vide Prācyvāṇī (Calcutta, 1946) Vol. III, No. 4, pp. 1-15.

2. This text is *Nāvanītaka* edited by Kavirāj Balwant Singh Mohan (from the *Editio Princeps* of the text by Dr. R. Hoernle), Lahore, 1925—Chapter X of *Nāvanītaka* deals with Hair-dyes (केशरागा:) verses 1-27-On p. 9 of his Introduction the Editor observes :—
"...the Second Century A.D. may be taken provisionally as the time of the compilation of the *Navanītaka*."

* I give below the English Translation of this Chapter from Dr. A. F. R. Hoernle's Trans. of *Bower MS* (Calcutta, 1893) pages 164-166:—

Twenty-seventh Leaf: Reverse

The Tenth Chapter : Formulae for Hair Dyes

I

(Verse 891) Boil......and oleander in sesame-oil. This, applied as an errhine or an Ointment is an approved remedy for turning greyhair into black.

II

(892 and 893a) A paste made of Prapauṇḍarīka and......(893a) and applied as a plaster, is a remedy for turning grey hair into black.

[......] [ि] प्लोषं लेपः पलितनाशनः ।
गोधना काचमाची च शतपुष्पातिलास्तथा ॥३॥
पानेन पिष्टिकाः केशा भवन्त्यञ्जनसन्निभाः ॥४॥
नीलिका हे [न्वं] च [`] च कणदिष्टा च पिप्पली ।
पानेन मृदिताः केशा । भवन्त्यञ्जनसन्निभाः ॥५॥
अभयामलकाभ्यां च पूर्वं मव [ा] मूर्धेच्छ्रारः ।
अलंबुषया संयुक्त पंकेनीलिकया सह ॥६॥
तेनोष्णेन शिरो लिप्येत्पलितं न भविष्यति ॥७॥
तुत्थमुस्तं अयश्शीसं कूर्मपित्तमयोरजः ।
दंती च सहदेवा च भागो भृङ्गराजस्य च ॥८॥
विभीतकानां तैलेन सिद्धं पलितनाशनम् ।
अभ्यंगं सततं कुर्यात् पलितं न भविष्यति ॥९॥
भृंगर (ा) जरसप्रस्थं तद्वत्पयसः पलं च मधुकस्य ।
तैलकुडवे विपक्वं कुर्यात् कृष्णामपि बलाकाम् । १०॥

III

(893b and 894a) Bamboo-manna, garden-nightshade Shatapushpa (Peucedanum graveolens), and sesamum-seeds (894a) if applied to the hair, cause them to become as black as antimony.

VI

(894b and 895a) Indigo, rock-salt, and long pepper, made with water into a paste (895a) if applied to the hair, cause them to become as black as antimony.

V

(895b and 896) First let the head be washed with chebulic and emblic myrobalans ; (896) then prepare a paste of Alambusha (Sphaeranthus indicus) and indigo, and with it, while warm, moist the head ; then the hairs will not turn grey.

VI

(897 and 898) Sulphate of Copper, Musta (cyperus rotundus), sulphate of iron, bile of a turtle, powdered iron, Danti (Baliospermum montanum), Sahadeva (Sida) rhomboidea), and Bhṛṅgarāja (Eclipta alba), one part of each, (898) boiled with oil of beleric myrobalan, are a remedy for turning grey hair into black and if it is applied regularly as an ointment, it will prevent the hair from turninggrey.

VII

(899 and 900) One prastha of the juice of Bhṛṅgarāja (Eclipta alba), the same quantity of milk, and one pala of liquorice, boiled in one Kuḍava of oil, will make even a crane to turn black. (900) it will remove wrinkles and grey hair for twelve years within a week and for one hundred years, within a month if administered in the form of an errhine.

VIII

(901 and 902) Two pala of the roots of Rāmatarunī (Rosa alba) one pala of liquorice, half a pala of śāvaraka (Symplocos racemosa), and ten pala of oil of beleric myrobalan, (902) boiled by the heat of the sun in an iron vessel for ten days, and administered as an errhine, make grey hairs to become of the same colour as the large black-bee.

नाग्यवति पलितिलितं हारहकर्मावि स्फुरत्येव ।
मासेन च वर्षसतं नस्तः कर्मतोयेन ॥११॥
रामतरसा हे मूलपले पलं च मधुकस्य ।
शाव (व)रकस्यांजनसदृश च ज्ञानकर्णेतस्य ॥१२॥
भावितेन विपक्वं पात्र समस्तांवसे दशाहानि ।
कुर्यात्ततः कर्म प्रमरवकर्मावि पलितानि ॥१३॥
आमलकरसप्रस्थः सर्पिः प्रस्थः पलं च मधुकस्य ।
संकृत्य सर्वमेतद्धैवो मृदग्निना विपचेत् ॥१४॥
अन्धमनन्धं कुर्यां पलितमपलितं तथैव दृढदृष्टम् ।
एतस्ततः करसं गतमपि निवर्तयति दृष्टिम् ॥१५॥

IX

(903 and 904) One prastha of the juice of emblic myrobalan, the same quantity of clarified butter, and one pala of liquorice:—all this together should be boiled over a gentle fire. (904) Its application as an ointment will give sight to the blind, and black colour to grey hair; and if perseveringly administered as an errhine, it will even restore one's lost sight.

X

(905-909) Take equal parts of no more than one akṣa, of each of the three myrobalans, indigo, and blue lotus, also of the fruit of Piṇḍāraka (Vangueria spinosa), (906) sulphide of antimony, roots of long pepper and leaves of sahacara (Barleria cristata), add a decoction of Jaman, earth from the roots of the Jaman tree.

Twenty eighth Leaf: obverse

(907) Fruit of Kakubha (Terminalia arjuna), and two kuḍava of sesame-oil, and boil the whole in oil of beleric myrobalans slowly over a gentle fire.

(908) Administer it now as an errhine for fifteen days; then on the sixteenth day the noble patient will have left no white hair, his scalp will be black, (909) his face and eyes will look well, and all his hair will be of a deep dark colour so says Agastya, the best of teachers.

XI

(910-916) Take the three myrobalans, flowers of sahacara (Barleria cristata) Jaman, Kāśmarya (Gmelina arborea), flowers of kakubha (Terminalia arjuna) kernel of the mango, and fruit of Piṇḍāraka (Vangueria spinosa). (911) also sulphate of iron, flowers of Asana (Terminalia tomentosa), indigo, blue lotus, knots of the root-stalk of the lotus, sulphide of antimony, black mould, and powdered iron, (912) also both kapotakārikā, both S'ārivā, Madayantī (Jasminum Sambac), Juice of Bhṛṅgarāja (Eclipta alba) and oil of beleric myrobalan. (913) Mix the whole with a decoction of Asana (Terminalia tomentosa) and let it stand unboiled for ten days in a vessel of iron. Then boil it thoroughly over a gentle fire, (914) and add to it one half as much of s'ukta, which had then kept placed in Mudga (Phaseolus Mungo) and Māṣa (*Phaseolus Roxburghii*). Then on the completion of the half month, having kept it well protected in the mean time, administer this preparation. (915) Having prepared one's body with the three myrobalans, and dieting on Khicharī, one should use this oil as an errhine, in doses of one s'ukti at a time, with care and insheltered spot. (916) Whoever that has a white head, permits one prasthna of this oil to be given to him as an errhine, he will, after the administration of it, possess black hair.

त्रिफलां च समां कुर्यान्नीलीं नीलोत्पलानि च ।
अक्षमान्मृषभागान्फलं पिण्डारकस्य च ॥१६॥
अञ्जनं पिप्पलीमूलं पत्रं सहचरस्य च ।
जंबूकषायः कर्तव्यः जंबम (बूमू) लाञ्च मृ [त्तिकाम्] ॥१७॥
ककुभस्य फलं कुर्यात् द्वौ तैलकुडवौ तथा ।
एतद्वैभीतक (के) त (तै)ले शनैर्मृद्वग्निनापचेत् ॥१८॥
म [...] सराहा [नि] नस्तः कर्मस [माच] रेत् ।
तः प (ो) दशमे ह्यहि न श्वेतः कृष्णमूर्धजः ॥१९॥
सुवकनयनः श्रीमान्भवेन्नीलशिरोरुहः ।
इत्युवाचेह भगवान् अगस्त्यो वदतां वरः ॥२०॥
त्रिफलासहचरकुसुमं जंबूकाश्मर्यककुभकुसुमञ्च ।
चूतफलस्य च मध्यं तथैव पिण्डारकफलञ्च ॥२१॥
काशीसमदनकुसुमं नीलीनीलोत्पलं विसग्रन्थी ।
अञ्जनमञ्जनवर्णाश्च कर्दमो लोहचूर्णञ्च ॥२२॥
द्वे कण्टकारिके द्वे च शारिवे दापयेच्च मदयंतीम् ।
भृंगर (ा) जरसं चापो तथैव वैभीतकं तैलम् ॥२३॥
असनकषायालुडितं पात्रे कार्ष्णायसे दशाहानि ।
स्थितमेतदनिभे दग्धं सम्यङ् मृद्वग्निना विपचेत् ॥२४॥
मुद्रेष्वथ माषेषु च सुक्तं स्थाप्यमर्धमादा [प्य] ।
पूर्णे ततोर्धमासे कृतरक्षन्तःप्रयोक्तव्यम् ॥२५॥
त्रिफलाभावितकायः कृशाशी शुचितमस्य तैलस्य ।
एकान्तरं सुनियतः सुनिवाते नस्ततो दद्यात् ॥२६॥
तैलप्रस्थं त्वेतद्यः सम्यङ्नामयेत नासिकया ।
उपयुक्ते श्वेतशिरा सकृष्णकेशः पुनर्भवति ॥२७॥
इति केशरागाः"

The ingredients[1] of the foregoing recipes for *Hair-dyes* which are supposed in the above verses to make the grey or white hair jet-black are as follows :—

(1) तिलतैल = AHK = Sesame Oil.

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1. Almost all these ingredients are mentioned in the *Aṣṭāṅgahṛdaya* of Vāgbhaṭa II (*8th or 9th Cent. A.D*). They are, therefore, recorded and explained by K. M. Vaidya in his अष्टाङ्गहृदयकोष, Trichur, 1936. I have marked the ingredients in the above list with the abbreviation *AHK* to indicate that they are mentioned in the अष्टाङ्गहृदय and explained by K. M. Vaidya.

(2) रोचना = गोरोचना (AHK)—Bezoar, Gall-Stone, Serpent-Stone.

(3) काचमाची — ? काकमाची (AHK)= *Solanum nigrum* (कागोणी)

*(3) नीलीका, नीलिका, नीली—Dyer's Indigo (AHK).

(4) पिप्पली — Long pepper (AHK), Marathi पिंपळी.

*(5) अभया = हरीतकी (AHK)= Ink nut, Chebulic myrobalan.

*(6) आमलक = Emblic myrobalan (AHK), Marathi आंवळा.

(7) अलंबुक — ? अलंबुषा (AHK)=A kind of sensitive plant: Marathi लाजाळु भेद.

(8) तुत्थम्=तुत्थकम् (AHK)= { Calamine, Carbonate of Zinc / Sulphate of Zinc=Mar. कलखापरी

(9) मुस्तम् — मुस्ता (AHK)—Nutgrass, *Cyperus rotundus*, Marathi मोथा.

*(10) कासीसम् —Green Vitriol (AHK)—Iron Sulphate, Marathi हिराकस.

(11) कुर्म्मपित्तम् — ? कूर्मपित्तम् .

*(12) अयोरजः = लोहचूर्ण (See No. 40 below). AHK mentions अयस् and लोहम्.

(13) दंती — Croton plant (AHK)—*Jatropha montana*, Marathi जमालगोट.

(14) सहदेवा — (Sida rhomboidea, according to Hoernle).

*(15) भृङ्गरजः — भृङ्गराज: (AHK)—Traling eclipta, Marathi माका.

*(16) विभीतकः =Beleric myrobalan (AHK), Marathi बेहडा.

(17) पयस् = क्षीरम् (AHK)—Milk.

(18) मधुकम् = यष्टीमधु (AHK), Sweet-wood, Liquorice, Marathi ज्येष्ठीमध

(19) रामतरुणी—AHK Mentions रामः=अशोकः, Perhaps रामतरुणी may be a sprout of अशोक tree.

(20) शाबरकः — श्वेतरोध्र (AHK) Lodh tree (white variety).

(21) अक्षः = विभीतक (AHK)=Marathi बेहेडा (See No. 16 above)

*(22) काष्णायस् = Black iron (Cf. कृष्णलोहम्) (AHK) = काललोहम् — Steel (कृष्णायसम्).

(23) सर्पिस्—घृतम् (Ghee) AHK.

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*This asterik mark indicates that the ingredient is found in *Ink-recipes* (after c. A.D. 1000).

*(24) त्रिफला—AHK (Three myrobalans हरीतकी, बिभीतक, आमलक).

(25) नीलोत्पलम्—Blue lily (AHK), *Nymphaea Caerulea* etc.

(26) विकङ्कत फल — Friut of विकङ्कत tree (See पियाल — Apte's Dictionary विकङ्कत (AHK)—Mauritius Plum).

(27) अञ्जनम्—Sulphide of Lead (AHK), Marathi सुरमा.

(28) पिप्पलीमूलम्—Piper root (AHK), Marathi पिंपळमूळ.

*(29) सहचर-पत्रम्—Leaf of नीलपुष्पा झिण्टी (*Justicia Ecbolium*) Marathi काळा कोरंटा (AHK).

(30) जंबू-(फलरस:)—Black Plum or Jamoon (AHK), Marathi जांभूळ.

(31) ककुभ-फलम्—Fruit of अर्जुनवृक्ष (AHK), Marathi अर्जुन सादडा.

*(32) बैभीतक-तैल—Oil of बिभीतक (बेहडा).

*(33) सहचर-कुसुमम्—Flower of सहचर (See No. 29 above).

(34) काश्मर्य:—काश्मरी (AHK), Marathi शिवण, गांभारी वृक्ष.

(35) ककुभ-कुसुमम्—Flower of अर्जुन वृक्ष (See No. 31 above).

*(36) चूतफल-मध्यम्—आम्रफल बीज (AHK) the seed of mango fruit.

*(37) असन-कुसुमम्—Flower of Kino tree (AHK), Marathi असणा.

(38) बिसग्रन्थी—बिसग्रन्थी (AHK) Knot on the lotus Stalk.

(39) अञ्जनवर्ण: कर्दम—? Mud of the colour of अञ्जन (See No. 27 above).

*(40) लोहचूर्णम्—Powder of iron (See No. 12 above) लोहम् also means अगुरु (AHK) *Agallochum*.

*(41) कण्टकारिका—कण्टकारी (AHK), Marathi रिंगणी, Wild Eggs Plant.

(42) शारिवा—शारिवा (AHK), Marathi पांढरी कावळी, Indian Sarsaparilla.

(43) मदयंती—[1]धातकी (AHK) according to इन्दु
—[1]काठमल्लिका (according to हाराणचन्द्र).

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1. मदयन्ती may mean मदयन्तिका, mentioned by *Susruta*. Dallana (c. A. D. 1100) explains मदयन्तिका as मेंदी (Henna), with the colour of which women paint their finger-nails. (See my paper on the *History of Mendi* (*Henna*) in the *Annals* (B. O. R. Institute, 1947), Vol. XXVIII, Parts I-II pp. 14-25). I may note here that *Susruta* mentions मदयन्तिका as an ingredient in an *aṅga-rāga* or unguent for royal use. In the *Navanitaka* मदयन्ती is prescribed as an ingredient in a recipe for Hair-dye. Though it is difficult to prove Dallana's equation of मदयन्तिका with मेंदी (Henna) we must admit that मन्दयन्तिका of *Susruta* and मदयन्ती of the *Navanitaka* (2nd Cent. A.D.) were plants yielding a dye which was used in the preparation of cosmetics and hair dyes say before A.D. 400, the later terminus for the date of *Susruta*.

*(44) असन-कषायः = Extract or decoction of असन (See No. 37 above).

*(45) कार्ष्णायस-पात्रम् = Black iron vessel.

(46) सुक्तम् = शुक्तम् (AHK) Vinegar.

Those who are interested in the chemistry of the recipes of Hair-dyes described in the Nāvanītaka may study the properties of the above ingredients and see how far the recipes are effective in making the grey or white hair black. Some of the ingredients in the above list are obviously used as dye-producing agents in these Hair-dyes. In the recipes for ink also I find similarly some dye-producing agents. I note below such of these agents as are common to the recipes for Hair-dyes and those for Ink-manufacture :—

Hair-dye Recipes in *Navanītaka* (c. 2nd cent. A. D.)		Ink-Recipes after c. A. D. 1200
त्रिफला (No. 24)	—	Formula for Ink in *Rasaratnākara* (c. 13th Cent. A. D.) :— त्रिफला =No 24
भृंगराजः No. (15)	—	भृंग =No. 15
सहचर (No. 29) = Black कोरंटा	—	कोरंट —No. 29
वृन्ताक मध्यम् (No. 36)	—	बीजाम्र =No. 36 भल्लात = Marking nut करवीरकम् —Oleander (Mar. कणेर) ताम्रपात्रम् —Copper vessel बोलः =a kind of gum (Mar. बोल)
अञ्जनम् (No 27)	—	कज्जलम् =lamp-black Cf. No. 27 *Ink-recipes : verses about 300 years old recorded by Muni Punyavijayaji* सहचर= ? No. 29 (सहचर) भृङ्ग = No. 15 त्रिफला—No. 2+
कासीस (No 10) Green Vitriol	—	कासीस—No. 10
लोहचूर्ण (No 40)	—	लोह—No. 40

नीली (No. 3) Indigo	— नीली = No. 3
	कज्जल from तिलतैल
	बोल
	पिचुमन्द = निम्ब
	भल्लातक
	लाक्षारस = Lac dye
	शुल्ब (पात्र) = ताम्र (पात्र) See Apte's Dictionary.
अशन (कुसुमम्) No. 37 } अशन (क्वाथ) No. 44 }	—अशन (असेः) = No. 37 and 44
	—गुन्द (क्वाथ) from खदिर tree
	—ताम्र (भाजन)
	Ink-recipes recorded in *Appendix V* to *Lekhapaddhati* (G.O. Series, Baroda, 1925, p. 95)
	—खदिर
	—भृङ्ग
	—त्रिफला
	—कासीस
	—लोहम्
	—नीली
	—कज्जल
	—बोल
कण्टकारिका (No. 41) = रिंगणी	— रिंगणीवृक्षफलरस (Marathi डेरली)
	—जम्बीर
	—लाक्षारस or लक्तकारस
	—ताम्रभाजन
	—निम्बगुन्द, खदिरगुन्द, बब्बूलगुन्द

A glance at the above table will show that out of more than 40 ingredients of Hair-dyes-recipes recorded in the Nāvanītaka (about 2nd century A.D.) about 10 ingredients are found in the recipes for Ink-manufacture that were current in India after c. A.D. 1000. These ink-recipes may have been current in India even before A.D. 1000 but we have not discovered any documentary evidence to prove their exact composition. It is, however, reasonable to suppose that the chemical properties of certain

ingredients, having once been recognized by ancient Indians, it was easy for them to use these very ingredients for the manufacture of different products for which they could be used with advantage. At any rate the Chemistry of Indian Ink-manufacture is closely related to the Chemistry of Hair-dyes. Whether the one has been evolved from the other it is difficult to say in the present stage of our investigation. To produce a deep black or blue black Hair-dye was the object of the Hair-dye recipes, while to produce an ink of these colours was also the object of the Ink-recipes. The fastness of these colours was also desired by the manufacturers of Hair-dye and Ink respectively.

Varāhamihira (c. A.D. 500) in his Bṛhat-Saṁhitā (Chapter 78—Gandhayukti) refers to the importance of Hair-dye and records a recipe for it as follows (pp. 419-420 of J. H. Athalye's Edition, Ratnagiri, 1874) :—

"स्रग्गंध धूपांबरभूषणाद्यं न शोभते शुक्लशिरोरुहस्य ।
यस्मादतो मूर्धजरागसेवां कुर्याद्यथैवांजनभूषणानाम् ॥ १ ॥
लौहे पात्रे तंडुलान् कोद्रवाणां
शुक्ले पक्वाल्लोहचूर्णेन साकम् ।
पिष्टान् सूक्ष्मं मूर्ध्नि शुक्लाम्लकेशे
दत्त्वा तिष्ठेद्वेष्टयित्वार्कपत्रैः ॥ २ ॥
याते द्वितीये प्रहरे विहाय
दद्याच्छिरस्यामलक-प्रलेपम् ।
संछाद्य पत्रैः प्रहरद्वयेन
प्रक्षालितं कार्ष्ण्यमुपैति शीर्षम् ॥ ३ ॥
पश्चाच्छिरः स्नानसुगंधतैलैः
लोहाम्लगन्धं शिरसोपनीय ।
हृद्यैश्च गंधैर्विविधैश्च धूपैः
अन्तःपुरे राजसुखं निषेवेत् ॥ ४ ॥"

The ingredients of the above recipe for a hair-dye are as follows :—

(1) लौहपात्र—Iron vessel
and लोहचूर्ण—Powdered Iron

(2) कोद्रवतण्डुलाः = Grain of हरीक (Marathi)
or *Paspalum Scrobiculatum*

(3) अर्कपत्राणि = Leaves of Madar (Marathi रुई)
or Swallow-wort

(4) आमलक = Marathi आंवळा, *Emblic Myrobalan*

Of the above four ingredients *two* have been mentioned both in the *Navanītaka* (c 2nd Century A.D.) and the *Ink-recipes* (*after A.D. 1000*). These *two* are (1) लोहचूर्ण and (2) आमलक (included in त्रिफला). The remaining *two* ingredients viz. (1) कोद्रवतण्डुल and (2) भृंगज are evidently an addition to the ingredients for *Hair-dyes* mentioned in the *Navanītaka*.

STUDIES IN THE HISTORY OF TĀMBŪLA

13. References to Tāmbūla in Indian Inscriptions between A.D. 473 and 1800*

Though the history of the betel-chewing habit of the Aryans in India for about 2000 years can be easily established on the strength of literary sources, it is difficult to get any references to this habit in inscriptions especially prior to A. D. 1000. It is, therefore, necessary to record whatever references one can gather in inscriptions in respect of *Tāmbūla* or betel with its ingredients like the *Chunam*, *Catechu* etc. In continuation of my studies in the history of *Tāmbūla* and its ingredients,[1] I record below some references to *Tāmbūla* in inscriptions with a view to providing to my historical study a steel frame of inscriptional data, the chronology of which is more definite than that of literary sources on which I have depended for the history of the cultural aspects of *Tāmbūla*.

The earliest reference[2] to *Tāmbūla* occurs in an inscription of *A. D. 473*. In 1939, I made inquiries with my esteemed and learned friend Dr. H. N. Randle, Librarian, India Office Library, London, about references to *Tāmbūla* if any, in Greek and Roman sources. Dr. Randle replied to me seven years after my inquiry. It is very rarely that scholars who are engrossed in their own work, remember inquiries from brother-scholars for a long time and send helpful replies to such inquiries. I, therefore, reproduce below Dr. Randle's reply dated *28th September, 1946* with my grateful thanks to him not only for this reply but for his scholarly co-operation with me for more than twenty years as the Librarian of the India Office Library.

**Sarūpa Bhāratī* (Hoshiarpur, 1954), pp. 208-215

1. I am thankful to my friend Dr. Lokesh Chandra of Nagpur for drawing my attention to a botanical study of the ingredients of *Tāmbūla*, viz. '*The story of Pan-Chewing in India*' by M. Gowda, Deputy Superintendent, Govt. Gardens, Lal Bagh, Bangalore(Botanical Museum Leaflets, Harvard University, Vol. 14, No. 8, (15-1-1951, pages 181-214). The economic importance of the betel-nut palm is very great. About 8/10 million dollars worth of betel-nuts areusedannually in India. Over 56,000 tons of betel-nuts are imported into India annually. Allthe surplus betel-nut productionof Ceylon, Straits Settlements, Indonesia etc., is absorbed by India. The acreage of betel-palm cultivation is as follows :— BombayState (22,700acres), Madras (108, 600) Mysore (34, 500), Burma (30, 750), Bengal and Assam (greater acreage than anyotherState).

2. This reference has been mentioned by my friends Shri R. N. Saletore and Shri A. N. Gulati in their recent publications noted below :—

(1) *Life in the Gupta Age.* (2) *Patolu in Gujarat.*

The para pertaining to *Tambūla* in Dr. Randle's letter referred to above reads as follows :—

'I have had in mind since 1939 an inquiry which you then made as to references in Greek and Roman authors to *betel*. Schoff in his translation of the *Periplus* says that McCrindle was mistaken in finding a reference to *betel* there. The reference is to trade in cassia-leaves. Certainly *malabathron* represents *tamāla-patra* and one does not see any reason why *betel-leaf* should have been exported. I think the result is negative, *i.e.* there is no reference in Greek and Latin.

I shall be interested to learn how far back you have traced reference, to *betel* in Sanskrit works. I remember a reference in the *Mandasor Silk Weavers' inscription of 473 A. D.* (Fleet's *Gupta Inscriptions* No. 18) lines 11-12 (of the inscription) :—

"तारुण्य-कान्त्युपचितोऽपि सुवर्ण-हार-
ताम्बूल-पुष्पविधिना समलंकृतोऽपि ।
नारीजनः प्रियमुपैति न तावदश्रयाम्
यावन्नपट्टमय-वस्त्र-युगानि धत्ते ॥"

I took this to mean :—

'Now women-folk may be young and lovely, and they may have the customary garland and *pān* and flowers to hand, but they will never go to meet a lover in the trysting place unless they have first put on their two-piece garment of silk'.[3]

The stanza quoted above from a silk-weavers' inscription of A. D. 473 would serve as a good advertisement for any silk-manufacturing modern mill as it advertises silk garments in quite a modern fashion. In fact the ancient Indian silk weavers rightly claimed the credit of providing an added charm by their silk garments to young and beautiful ladies bedecked with gold necklaces and flowers and with their lips reddened by the use of *Tambūla*. This make-up of ancient Indian damsels remains almost unchanged during the last 1500 years, with the only exception of the lip-stick which is now used for giving colour to the lips instead of the use of *Tambūla* for the same purpose. But the use of the lip-stick has not spread to the country side, where the use of *Tambūla* is very common as an aid to beauty.

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3. Fleet's translation of the verse is as follows :—

Page 85 — '(Just as) a woman, though endowed with youth and beauty (and) adorned with the arrangement of golden necklaces and *betel leaves* and flowers, goes not to meet (her) lover in a secret place, until she has put on a pair of coloured silken cloths,— (so) etc.'

[The correct text of line 3 in the verse quoted above is as follows :—

नारीजनः प्रियम् उपैति न तावद्-श्रग्रयाम् Ed.]

The reference to *Tambūla* in a Gupta inscription of *A. D. 473* supports the present belief of some scholars that *Tambūla* was introduced into India from the South Sea Islands like Java, Sumatra etc. during the early Gupta period as a result of the increased maritime contact of India with these islands. The references to *Tambūla* and its ingredients found in Kālidāsa's works, and the early medical texts like the *Caraka Saṁhitā*, *Kāśyapa Saṁhitā*, *Suśruta Saṁhitā* etc. are in harmony with this inscriptional reference of *A. D. 473*, which further confirms the verses about *Tambūla* in the section on Cosmetics and Perfumery (*Gandhayukti*, chapter 77) in the *Bṛhat-Saṁhitā* of the celebrated astronomer Varāhamihira, who was born about A. D. 490 according to S. B. Dikshit.[4]

In the Nagar inscription of Dhanika dated (Vikrama) *Saṁvat 741* (=*A. D. 685*) edited by S. S. Guleri in the *Bhārata-kaumudī* (Dr. R. K. Mookerji Commemoration Volume), Allahabad, Part I, 1945, we find references to *karpūra* (camphor) and *Tambūla* in the following extract :—

Page 274—lines 8 and 9 on the inscription:—

"वक्त्रं चन्द्रनिभं ललाटफलकेऽन्यस्तं लसल्लोचनं।
दत्ताङ्क (ङ्के) पि जलादिद्रका तनुतरे कर्पूर-धूलीभरा
भर्त्तुर्वल्लभया तयापि न हृतो य(त्कोप) तापोद्गमः ॥ १० ॥
ऽयालोललोचनजलप्लुतिलाञ्छितानि
लम्बालकानि ललितस्मितवर्जितानि।
त(ता)म्बूलरागरहिताधरभाञ्जि यस्य
कोपश्चकार वदनान्यरिसुन्दरीणाम् ॥ ११ ॥"

The foregoing extract gives us a description of the sorry plight of the wives of the enemies as a result of the exploits of the king, whose wrath brought tears to the eyes of these wives and removed the smiles on their faces and the red colour[6] of *Tambūla* on their lower lips.

The following references to *betel-nuts* and *Tambūla* in old *Kannada*

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4. *History of Indian Astronomy* (in Marathi), Poona, 1896, p. 212.

5. The first Western mention of camphor (*caphura*) occurs in the Greek Medical writer Aëtius (c. *A. D. 540*) but it probably came through the Arabs (vide article on *Camphor*, in *Hobson-Jobson* by Yule and Burnell, London, 1903, p. 151). It has been suggested that the word for camphor was originally Javanese in which language *kāpur* appears to mean both *lime and camphor*.

6. The mention of the colour produced by *Tambūla* chewing presumes the use of two main ingredients viz. *Chunam* and *Catechu*, the antiquity of which has been established by me for about 2000 years (see my article in this volume).

inscriptions in South Kanara and the Bellary District of the Madras Province are noteworthy as they show the production of the *betel-nuts* and betel-leaves between A. D. 750 and 962 in South India. South Kanara is still famous for its betel-nuts as it appears to have been more than 1200 years ago. The *Kannaḍa* inscriptions under reference are as follows:—

(1) *Inscription of A. D. 750-70* (South Kanara of Madras Province) refers to the word '*aḍakeya*' meaning 'of *areca-nuts*' (vide p. 115 of '*Historical Grammar of Old Kannaḍa*' by G. S. Gai, Deccan College Research Institute, Poona, 1946).

The word '*aḍake*' means 'areca-nut.' The word for nut-cracker viz. '*aḍkitta*' current in the Marathi language for more than 400 years is of *Kannaḍa* origin as I have proved in my paper on the *Indian Nut-cracker.*[7]

(2) *Inscription of A. D. 962* (Bellary District of Madras Province) refers to '*Tambulam*' (areca-nuts, leaves etc., vide p. 163 of G. S. Gai's *Grammar of Old Kannaḍa* referred to above.

The production of *betel-nuts* on a large scale in the districts of the Bombay Presidency including the Karnatak and South Indian districts from A.D. 1000 onwards is amply vouched by the following inscriptions:—

A.D. 1028—A stone-slab inscription at Hosur in the Gadag Taluka of the Dharwar District of the reign of Jagadekamalladeva I records the grant of an *areca-nut garden* and house sites made by Aycha-gāvuṇḍa to the *basadi* constructed by him in memory of his wife (vide *Inscription No. 65* on page 55 of *Bombay Karnatak Inscriptions*, Vol. I, Part I, Madras, 1940, *South Indian Inscriptions*, Vol. XI, Part I).

A.D. 1061—Ibid., Inscription No. 96 (Dharwar District) records the gift of one *paṇa* and *100 areca-nuts on every areca-palm garden to 400 mahājans of Brahmapurī.*

A.D. 1050—Inscription No. 107 (page 82 of *South Indian Inscriptions*, Vol. IX, Part I, Madras, 1939) records the gift of *land with some rows* of *areca-nut trees*, a flower-garden and an oil-mill to Vidyānidhi Paṇḍita for the service of God.

A.D. 1079—Ibid., Inscription No. 141 records the grant of land for the service of God Rāmeśvara. The five-hundred merchants of the place made *a gift of kāṇi per load of betel-leaves.*

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7. See *Bhārata Itihāsa Saṁśodhana Maṇḍala Quarterly*, Poona, 1948, pp. 8-14.

A.D. 1135[8]—*Ibid., Inscription No* 232 records the '*gift of 500 leaves* for the service of the God *Jakkeśvara*.' This is a gift by some Settis of place.

A.D. 1142—Ibid., Inscription No. 238—An officer under Vīrapāndavadeva and other persons made a *grant of the toll on three lacs of areca-nuts for the service of the God Gavareśvaradeva.*

A.D. 1292—Ibid., Inscription No. 344—Merchants of various countries are said to have *granted one tāra of betel-leaves out of every naḍe for the service of God.*

A.D. 1147—Inscription No. 8 in the volume on *Kolhapur Inscriptions* (by K. G. Kundangar. 1939) refers to one Bammanayya the *Prime Minister, the head of the betel-leaf department*' (lines 33-34 of the Inscription on p. 82.)

A.D. 1144} Dr. B.A. Saletore refers to *areca-nuts* and *betel-leaves* in
A.D. 1163} inscriptions. (vide p. 151 of Vol. I of *Social and Political Life of Vijayanagar*).

A.D. 1166—Inscription No. 13 of *Kolhapur Inscriptions* refers to grant of land for the *'betel-leaves of God Cenna Keśava*' (lines 66-69 on p. 112).

A.D. 1176—Inscription No. 14 (*Kolhapur Inscriptions*) refers to taxes on imported articles like *pepper, sugar, jaggery* and *betel-nuts.* It further refers to an assembly of oilmen *granting one spoon of oil on each extraction from each shop every year for the betel-leaf of God* (line 52, p. 120).

A D. 1193—Inscription No. 2033 of Malaya Siṁha of Tripuri refers to 'Harisiṁha. son of Jagatsiṁha, who was *betel-nut distributor* (vide p. 282 of D. R. Bhandarkar's List of *Northern Inscriptions* and *Epigraphia Indica*, Vol XIX, pp. 296 ff).

A.D. 1235—Inscription No. 18 (*Kolhapur Inscriptions* by K. G. Kundangar, 1939) of the Yādava king Singhaṇadeva refers to the grant *'for the betel-leaves of God Bhāvaśuddhadeva*' (line 64, p. 153).

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8. In the encyclopaedic work '*Mānasollāsa*' (G. O. Series, Baroda, Vol. II) composed by the Cālukya King Someśvara about *A.D. 1130*, there is a chapter on *Tāmbūlabhoga*, which describes in detail the different ingredients of *Tāmbūla* and their use. The names of places which produced the best kinds of *betel-leaves* and *betel-nuts* have been mentioned in this chapter, which is perhaps the earliest medieval special account of *Tāmbūla* as used at the royal court.

A.D. 118:—*Inscription No. 15 (Kolhapur Inscriptions)* refers to betel-leaves sellers[9] making a grant of *100 betel-leaves* on one load *for the maintenance of the betel-leaves of God Habbeśvara* (lines 88-90, p 137).

At present the use of *betel-nut* and *cocoanut* on all auspicious and religious functions is very common in India among the Hindus. It is worth while undertaking an investigation into the origin and history of this use. For this purpose it is desirable to record the different words for the *betel-nut* and the *cocoanut* recorded in literary and inscriptional sources. The lexicon *Amarakośa* (between c. A.D. 500 and 800) records the synonyms for the *betel-nut* and the *cocoanut* as follows :—

Kanda II (वनौषधिवर्ग) — p. 212 of N. S. Press Edition, Bombay, 1905.

Cocoanut—'नालिकेरस्तु लाङ्गली ॥ १६७ ॥'

Bhānuji Dīksita (c.A.D.1630) says that नालिकेर and लाङ्गली are two synonyms for नारिकेल or *cocoanut*.

Betel-nut—'घोण्टा तु पूगः क्रमुको गुवाकः[10] खपुरः ॥ १६६ ॥'

Bhānuji Dīkṣita says that these are five synonyms for पूगवृक्ष commonly known as 'सोपारी' ('पञ्च पूगवृक्षस्य' 'सोपारी' इति ख्यातस्य).

The Bengal Inscriptions edited by Mujumdar refer frequently to नारिकेल (cocoanut) and गुवाक (betel-nut) plantation on the lands donated[11] to certain persons by the kings of Bengal as will be seen from the following references :—

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9. With the acquisition of the betel-chewing habit by the Aryans in India there arose a class of traders in *Tambula* called *tambulika* class, which later became a caste with the name *Tamboli*. At present the *Teli* (oilman) and *Tamboli* (seller of *Tambula*) are regular castes in the Indian caste-system. The history of the *Tamboli* caste is worthy of a careful study.

10. Wilson, H. H., in his *Sanskrit Eng. Dictionary* p. 306, explains the word '*guvaka*' as follows :—

'गुवाक m(·कः). The betel-nut-tree (Areca faufel or Catechu)

E. गु to stool, affix आक and उ converted to अव irregularly'.

It is worth-while tracing the history of the word 'गुवाक' in sources earlier than *Amarakośa* with a view to determining its exact etymology. It is for linguists to say if this word is really a Sanskrit word.

11. Paul, P. L., in his *Early History of Bengal*, Calcutta, 1939, p. 131, describes the Administrative system and the regular taxes revealed by the grants of the Pala kings. In this connection he observes :—

'It is interesting to note that in the land grants it is specially said that the donee is to have the privilege of the enjoyment of *madhuka, mango, jack-fruit, betel-nut,* and *cocoanut* trees. This goes to show that the king had some share from their income. This is further confirmed by the fact that in the Sāhitya Pariṣad grant of *Viśvarūpasena* the income derived from the betel-leaf plantations is to be enjoyed by the donee'.

(1) *Copper-plate of Viśvarūpa* (vide p. 178 of *Bengal Inscriptions* by Mujumdar, Vol. III, 1929; see also *Indian Historical Quarterly*, Vol. II, No. 1, March 1926, pp. 77-86).

Line 45—Mention is made of 'वरज' in the sense of *Betel-leaf plantation* in which sense this word is used in Bengal.

Line 50—'गुवाकशत'— 100 *betel-nut* trees.

Line 53—'गुवाकमूल्यसमेत'— together with price of *betel nuts*.

Line 54—'गुवाकव.स्तुभू'— land in which grow *betel-nut* trees.

Line 60—'सगुवाकनारिकेला......भूमि:' — land in which are growing *betel-nut* trees and *cocoanut* trees.

Line 61—'गुवाकनारिकेलादिकं लगयित्वा'— causing plantation of *betel-nut* trees and *cocoanut* trees.

(2) *Sundarban Copper-plate of Lakṣmaṇasena* (*Bengal Inscriptions*, Vol. III (1929), p. 169, ed. by Mujumdar).

Page 171—'सगुवाकनारिकेल.. ...भूभाग:'

Page 425—*Plate of Keśavasena*

Line 51—'सगुवाकनालिकेरा (भूमि:)'

Page 112—*Plate of Lakṣmaṇsena*—'सगुवाकनारिकेल:'

Page 102—(*Plate of Lakṣmaṇasena*)

Line 39—'सगुवाकनारिकेल:'

Pages 93 and 97—'डालिम्ब[12]क्षेमभीमा'

(3) *Copper-plate* (Dacca Dist.) of *Bhojavarman* (about A. D. 1100) (*Bengal Inscriptions*, Vol. III).

Page 24—'साम्रपनसा सगुवाकनालिकेरा'

(land 'with *mango, Jack fruit, betel-nut* and *cocoanut trees*').

Page 8—*Copper-plate* of *Śrī Candra*—'साम्रपनसा/सगुवाकनालिकेरा'

(4) *Ānuta Copper-plate of Lakṣmaṇasena*—(*Inscriptions of Bengal*, *Vol.* III, Varendra Research Society, Rajashahi, Bengal, 1929)

Page 87—'खण्डक्षेत्रं......सगुवाक-नारिकेलं'

('a plot of land...with *betel-nut and cocoanut* trees'—p. 90).

We have recorded above a few references to betel-nut plantations in Bengal from the inscriptions of Bengal kings whose chronology[13] is as follows :—

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12. *Dalimba* (Dāḍima), *i e*. the pomegranate tree was transplanted according to *Sino-Iranica* by Laufer, 1919, pp. 285-86, into India from *Iranian* regions in the *first centuries of the Christian Era*. This tree is not mentioned in Vedic, Pali or early Sanskrit literature. The word *dalima, daḍima* etc. is traceable to Iranian *dulim*, reconstructed on the basis of Chinese transcription.

13. Vide p. 101 of *Early History of Bengal* by P. L. Paul, 1939 (Calcutta).

1. Lakṣmaṇasena (27 years)—c. A.D. 1178-1205
2. Viśvarūpasena (14 years, son of Lakṣmaṇasena)
3. Bhojavarman[14] (about A.D. 1100)

In the light of the above chronology we are warranted in concluding that the betel-nut plantations were a regular feature of agriculture and economics of Bengal between c. A.D. 1100 and 1300.

It is possible to find references to *Tāmbūla* in inscriptions of Northern and Southern India posterior to A.D. 1300. I hope some expert in the study of inscriptions would collect and record such references with a view to reconstructing the economic history of the *Areca-nut* and allied products in mediaeval India.

I conclude this short record of references to *Tāmbūla* in inscriptions from A.D. 473 onwards by adding the following late references to *Tāmbūla* to the present study:—

(1) Dr. B.A. Saletore in his *Social and Political Life of Vijayanagar* Vol. II, p. 180, mentions an inscription of *A.D. 1422* which describes the conquest of a Jain general. In this connection the inscription mentions the women of the conquered people as follows :—

'By their *bimba*-like lips, deprived of the redness (caused) by the betel'.

(2) In the *Journal of the Annamalai University* (March 1941, p. 318) an inscription of the time of the Nayaks of Tanjore from Pattiswaram (No. 257 of 1927) refers to a dispute regarding the procedure in the receipt of *betel-leaves* and *areca-nuts during marriages*.

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14. *Ibid.*, pp. 79-80. *Bhojavarman* was the last known Varman King. He was the son of *Sāmalavarman* by *Trailokyasundarī*. *Sāmalavarman* was the son of *Jaṭāvarman*, a contemporary of Vigrahapāla III (c. A.D. 1045-1072). The Varmans were most probably ousted by Vijayasena (c. A.D. 1097-1159).

14. Studies in the History of Tāmbūla—Use of Tāmbūla outside India between A. D. 650 and 1900.*

In the series of papers projected by me on the history of *Tāmbūla* (use of betel-nut and betel-leaf for chewing purposes) in India, I have so far published two papers, one on the history of Indian Nut-cracker[1] and the other on the history of the use of *Lime* and *Catechu* in *Tāmbūla*[2]. In the latter paper I have recorded some evidence about the currency and antiquity of *Tāmbūla* in Indo-China. In this connection it may be worthwhile recording some evidence about the existence of the use of *Tāmbūla* in countries adjacent to India or otherwise. The following notes collected at random during the course of my cultural studies may be helpful to other scholars to record similar notes from sources not available to me.

1. Arthur A. Perera in his article on *Glimpses of Singhalese Social Life*, (*Indian Antiquary* 1904) records the following interesting story about the *Cocoanut* and the *Areca tree* :—

Page 231—"An astrologer of the Beravāyā caste once told a King that a particular day and hour was so auspicious that anything planted then would become a useful tree. Thereupon the King directed the astrologer's head to be severed and planted, and this grew into the *crooked cocoanut tree*. The King was so pleased with it that he got his own head planted and it became the *straight areca tree*."

**Journal of the Travancore University Manuscripts Library*, Vol. VI, Nos. 1-2, pp. 1-14.

1. Vide pp. 8-14 of *B. I. S. Mandal Quarterly* (Poona, 1948). In this paper I have established the use of the betel-nut-cracker (*aḍkitta*) up to about 1300 A. D. The Marathi word *aḍkitta* is derived from a Canarese word for this instrument current in the 14th century A. D. A Marathi word, viz., *Pophaḷ-phoḍṇa* for *nut-cracker* was current in the Deccan about 1250 A. D. as it is found in a Marathi *Mahanubhava* work *Līḷacaritra* (uttarardha). Details of these references will be found in my paper on *Tāmbūla* published in the Volume mentioned in foot-notes below. As regards the use of nutcrackers in Europe, vide *Bulletin of the Museum of Fine Arts, Boston*, December, 1949, No. 270, pp. 76-77, where a bronze object (figure 6) of 6 inches in length (of the shape of scissors) has been identified as a *nut-cracker*. It was found at Lille and most probably it originated in Northern France or Franco-Flemish centre in the *14th century* A. D.

2. Contributed to *the 150 Anniversary Volume* of the Asiatic Society of Bombay.

The story explains in a funny manner the contrast of *crooked cocoanut* plantations with the *straight areca* plantations in Ceylon.[3]

2. In an *Account of the Kingdom of Nepal* (Book the Fourth, Chapter II of the *Travel of Ippolito Desideri of Fistoia S. J.* (A. D. 1712—1727)—Broadway Travellers, London, 1932, pp. 313—314) we find a reference to the use of *betel* and *pan* in the following extract :—

> "... .....Now by Nepalese law, persons living in the royal palace, even any who touched the walls with their hands, enjoyed the right of sanctuary and absolute immunity from any danger; nevertheless the Neuārs killed, almost in the presence of the prince, several foreigners and Muhammedans Another time they sent a deadly poison wrapped in certain aromatic and tonic leaves much used in certain parts of India, where they are called *betel*,[4] in Mogol their name is *pan*. The Muhammedans exposed the treachery and the king sent for a goat, which fell dead after eating a few leaves. The miscreants were punished, but far too leniently, with perpetual banishment. At last the successive rebellions of the Neuārs so afflicted the young and robust king, that he died of anxiety and worry."

3. According to Thomas Green[5] "*Areca Catechu*" is "*a native of the East Indies and of Cochin-China*". This statement is in harmony with the antiquity of *Tāmbūla* in Indo-China referered to by me already in this paper.

4. In the *History of Sumatra* by William Mardsden (2nd Edition, London, 1784) we get an exhaustive account of the Betel-nut plantations and the custom of chewing betel-nut as current in Sumatra in the latter part of the 18th century. I give below the pertinent extracts which would enable the readers to understand fully the cultural back-ground of *Tāmbūla* in Sumatra more than 160 years ago :—

Page 74 —Betel-nut and other vegetables of domestic life.

3. The history of *Tambula* in Ceylon needs to be reconstructed on the basis of Singhalese literary sources with which I am not familiar.

4. The history of *Tambula* in Nepal needs to be investigated. From Apolito's remarks it appears that *Tambula* may have been current at the court of Nepal prior to A. D. 1712.

5. Vide p. 118 of "*The Universal Herbal or Botanical, Medical and Agricultural Dictionary containing an account of all the known plants in the World*" by Thomas Green, Vol. 1 (Fisher, Son and Co. 1823; London, Paris, New York). See also Page 336 of Vol. II of this Herbal where *Areca Catechu* is described as "*Native of the East-Indies*".

"Of the *Penang* or Betel-nut tree, which in growth and appearance is not unlike the cocoanut, the natives make *large plantations*, as well as of the *Seree*, a creeping plant, whose leaf, of a strong aromatic flavour, they eat with betel-nut and other additions, a practice which I shall hereafter describe."

Page 127—"The *Penang* or Betel-nut, before mentioned, is a *considerable article of traffic*[6] *to the coast of Coromandel or Telinga particularly from Acheen.*"

Page 242— Custom of chewing Betel - Emblematic presents etc.

" Whether to blunt the edge of painful reflection or owing to an aversion our natures have from total inaction, most nations have been addicted to the practice of enjoying by mastication, or otherwise, the flavour of substances possessing an inebriating quality. The South Americans chew the *cocoa* and *mambee* and the Eastern people, the *betel* and *areca* or as they are called in the Malay language, *Seeree* and *penang*. This custom has been accurately described by various writers[7] and therefore it is almost superfluous to say more on the subject, than that *Sumatrans universally use it*, carry the ingredients constantly about them and serve it to their guests on all occasions, the prince in a *gold stand* and the poor man in a *brass box* or *mat bag*.[8] The *betel stands* of the better rank of people are usually *of silver*, embossed with *rude figures. The Sultan of Moco was presented with one*[9] *by the India Company with their arms on it; and he possesses besides another of gold filagree.* The form of the stand is the frustum of an hexagonal pyramid reversed; about six or eight inches in diameter. It contains many smaller vessels, fitted to the angles for holding

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6. Owing to the continuous commercial contact of India with Sumatra the traffic in *betel-nut* (penang) with South Indian ports must have been constant since the first contact of India with Sumatra and other islands in Southern Seas.

7. I propose to record in a special paper notices of *Tambūla* in India by foreign observers.

8. In the Deccan the poor men addicted to *Tambūla* carry with them a cloth wallet called "*Cañcī*" which contains pockets for keeping the betel-nuts, betel-leaves, tin boxes containing *chunam* and other ingredients, as also the nut-cracker. The wallet is rolled up and carried in a pocket of the jacket, shirt or coat.

9. If this silver stand could be traced now it woud be worthy of being preserved in a museum. My friend Mr. D. G. Kelkar of Poona has collected a large number of nut-crackers, *chunam* boxes and betel stands of the 17th century and the 18th century from some parts of India. He should try to collect specimens of these items from Java, Sumatra, Indo-china etc., where *Tambūla* has been current for hundreds of years as proved by this paper.

the *nut-leaf* and *chunam*, which is *quicklime from cacline shells*; with places for the *instruments*[10] *employed for cutting the first*; (*cacheep*) and *spatulas for spreading the last*.

When the first salutation is over, which consists in bending the body and the inferior's putting his joined hands between those of his superior and then lifting them to his forehead, the betel is presented as a token of hospitality[11] and an act of politeness. To omit it on the one hand, or to reject it on the other, were an affront as it would be likewise in a person of the subordinate rank to address a great man, without the precaution of chewing it before he spoke. All the preparation consists in spreading on the *Seeree* leaf a small quantity of *Chunam* and folding it up with a slice of *penang* nut. Some mix with these *gambeer*, which isa substance prepared from the leaves of a tree of that name by boiling their juices to a consistance and made up into little balls or square* (* A particular detail of the cultivation and manufacture of the *Gambeer* is given in the second volume of the trans. of the Batavia Society, I, i. 2). *Tobacco*[12] is likewise added, which is shred fine for the purpose, and carried between the lip and upper row of teeth. From the mastication of the first three proceeds a juice, which tinges the saliva of a bright red and which the leaf and nut without the *Chunam* will not yield. This hue[13]

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10. Capt. Edward Moor (A. D 1794) refers to the nut-cracker used in India in his *Narrative* etc. (*vide* my paper on *IndianNut-cracker*).

11. Offering *Tambula* as a sign of hospitality is mentioned in the *Kamasutra* (N. S. Press, Bombay, 1900) p 314—

"ताम्बूलानि सम्प्रत्वेव......

आगतस्याहरेत् प्रीत्या कलागोष्ठीश्च योजयेत् ॥"

and p. 239.—

"नायकमित्राणां ...... ताम्बूलदानैः पूजनं ...... ।"

12. Asad Beg saw *tobacco* at Bijapur in A. D. 1604-1605 and introduced it to Akbar (vide p. 923 of *Hobson Jobson*, 1903).

13. Sanskrit literature is full of references to the hue or red colour imparted to the mouth by *tambala* as will be seen from the following extracts :—

(*Bhamaha* ?)—

"ताम्बूलरागवलयं स्फुरद्दशनदीधिति ।

इन्दीवराभनयनं तदेव वदनं तव ॥"

(See p. 808 of *Kavyadarsa ed. by* R. Raddi, B.S.S. 1938).

(Sṛṅgāra-tilaka)—

"रागो न स्खलितस्तवाधरपुटे ताम्बूलसंवर्धितः ।"

being communicated to the mouth and lips is esteemed ornamental and an agreeable flavour is imparted to the breath. The juice is usually, though not always, swallowed by the chewers of betel. We might reasonably suppose that its active qualities would injure the coats of stomach but experience seems to disprove such a consequence. It is common to see the teeth of elderly persons stand loose in the gums, which is probably the effect of this custom, but I do not think that it affects the soundness of the teeth themselves. Children begin to chew betel very young and yet their teeth are always beautifully white, till pains are taken to disfigure them, by filing and staining them black. To persons who are not habituated to the composition, it causes a strong giddiness, astringes and excoriates the tongue and fauces and destroys for a time the faculty of taste. During the *pooaso* or fast of *Ramzan* the Mahomedans among them abstain from the use of betel while the sun continues above the horizon, but, excepting at this season, it is the constant luxury of both sexes from an early period of childhood till, becoming toothless, they are reduced to the necessity of having the ingredients previously reduced to a paste for them, so that without further effort the betel may dissolve in the mouth. Along with the betel and generally in the *Chunam* is the mode of conveying philtres or love charms.[14] How far they prove effectual I cannot take upon me to say, but suppose they are of the nature of our stimulant medicines, and that the direction of the passion is of course indiscriminate. The practice of administering poison in this manner is not followed in latter times but the idea is not so far eradicated as entirely to prevent suspicion, appears from this circumstance, that the guest though taking a leaf from the betel service of his entertainer not unfrequently applies it to his own *Chunam* and never omits to pass the former between his thumb and forefinger, in order to wipe off any extraneous matter. This mistrustful procedure is so common as not to give offence.

Tobacco :—Besides the mode mentioned before of enjoying the flavour of *tobacco* it is also smoked by the natives, and for this use, after

14. *Nagarasarvasva* (Ed. by Tripathi, Bombay, 1921, pp. 21-22) a work on erotics by Padmaśrī (c. A. D. 1000) describes five kinds of *Tambūla* used in love affairs:—

"ताम्बूलविटकाः पञ्च कीर्तिता नरपुङ्गवैः ।
कोमलाङ्कुशकन्दर्पपर्यङ्कचतुरस्रकाः ॥" etc.

shredding it fine, while green, and drying it well, it is rolled upin leaves of the *Neepah* tree (a species of palm) and it is in that form called *roko*. The *rokos* are carried in the *betel box* or more commonly under the *daytar* or handkerchief, which in imitation of turban surrounds the head. Much *tobacco* is likewise imported from China and sells at a high price. It seems to possess a greater pungency than Sumatran plant."

In the above account of *Tambūla* in Sumatra in the latter part of the 18th century the *oral use of tobacco* along with *Tambūla* is noteworthy. Suchoral use of tobacco with *Tambūla* is widely current at present in India.

5. The use of *Tambūla* in Arabia at *Dhofar* at the extremity of Yemen is vouched by Batutta in his *Travels* (ed. By H. A. R. Gibb, London, 1929 – Broadway Travellers). Batutta tells us that the inhabitants of Dhofar resemble the people of North-West Africa in their customsand that the cultivated "betel trees" by which he means the *betel vines* and used the leaf of these creepers along with *areca-nuts* and *chalk*. According to Gibh (Note 13 to Chap. III of *Travels*) Dhofar contains tropical vegetationand its population is not Arab but of Sudanic type.

Page 114 — "They (inhabitants of Dhofar) grow *betel trees* and *coco-palms which are found only in India*. They have no fruit and are *grown only for their leaves*. The Indians have a high opinion of *betel*, and if a man visits a friend and the latter gives him five leaves of it, you would think he had given him the world, especially if he is a prince or notable. A gift of betel isan honour far greater than that of gold or silver. It is used in this way. First one takes *areca nuts*, which are like nutmegs, crushes them into small bits and chews them, then the *betel leaves* are taken, a little *chalk* is put on them, and they are chewed with the areca nuts. They sweeten the breath and aid digestion, prevent the disagreeble effects of drinking water on the empty stomach and stimulate the faculties."

Page 110 — Batutta goes to Maqda Shaw (Mogdishu).

Page 111 — "The Sultan (of Mogdishu) whose name is Abu Bakr, is of Berberah origin, and he talks in Maqdishi language, though he knows Arabic. When we reached the palace and news of my arrival was sent in, a eunuch came out with a plate containing

betel leaves and *arecanuts.* He gave me ten leaves and a few nuts, the same to the *qādi* and the rest to my companions and the qādi's students and then said "Our master commands that he be lodged in the Students' house."

Page 241 — Batutta went to *Maldive islands.* At *the island of Mahal,* the seat of the Sultana and her husband, he was honoured. "They brought out *betel* and *rose-water* to us, this being their mark of honour." (p. 246). Batutta married the daughter of the Wazier Sulayman, who "gave his consent[15] and sent the customary *betel* and *sandalwood*" (p. 249).

Page 272 — Batutta at *Barahanakār* (probably *Arakan in Burma*). "This tribe is a rabble............They live in reed huts roofed with grasses on the sea-shore and have abundant banana, *areca* and *betel trees.*"

Page 273 — Batutta at *Jāwa* (Sumatra).

"The commonest trees there are the coco-palm, *areca*, clove, Indian aloe, jack-tree, mango, jamun, sweet orange and camphor cane."

The foregoing references to the use of *Tāmbūla* in *Arabia, Maldive Islands, Sumatra, Java, Burma* etc., in Batutta's *Travels* (A. D. 1325-1354) clearly prove the currency of the *Tāmbūla* habit outside India in the first half of the 14th century.

6. The Italian traveller Tavernier in his *Travels* (Trans. by V. Ball, London, 1889, Vol. II) describes the use of *Tāmbūla* by the King of *Bantam*, (situated at the western end of Java) as follows :—

Page 354—"On his right side there was an old black woman who held in her hand a small mortar and a pestle of gold in which she crushed the *betel leaves* with which she mixed *arecanuts*[16] and *dissolved seed pearls.* When she saw that the whole was well pounded she placed her hands on the King's back who at once opened his mouth and she put the *betel* in with her fingers as women do who give pap to their infants[17] because the king had

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15. The *Smṛtyarthasāra* of S'ridhara (A. D. 1150-1200) also refers to the practice of effecting a marriage by giving *Tāmbūla* alone as a sign of consent :—

"अधर्मेषु (v. l. आसुरादि) विवाहेषु ताम्बूलमनुमोदनम् ।"

(p. 17 of Ānandās'rama Ed. Poona, 1912)

16. "*Araque* in the original"—Editor.

17. "I recently saw the famous hairy woman of Mandalay being supplied with *betel* by her Burmese attendant in much the same way ; being blind the packet had to be prepared for her and placed in the mouth"—Editor.

no teeth: for he had eaten so much *tobacco* that his teeth had fallen out."

The above extract proves the use of *Tāmbūla* in Java in the middle of *the 17th century.*

7. The Italian traveller *Manucci* in his *Storia do Mogor* (or Mogul India) Trans. by William Irvine, London, 1918 (John Murray, 4 vols.) makes mention of *betel leaves* sent to the Indian envoy while in Persia and further observesthat these leaves were not available in Persia as will be seen fromthe followingextract :—

> Vol. II, p. 128—"The ambassador (sent to Persia by Aurangzeb) arranged matters so that on his arrival in *Isfahan* he received there *fresh betel*, a leaf that on mastication gives an agreeable odour to the stomach. I spoke of it in the First part of my History (I, 39) upon my arrival in Surat. *They have none of this leaf in Persia.*"

It is noteworthy how Aurangzeb's Muslim ambassador, addicted to *Tāmbūla* in India, arranged for its supply in Persia, where it was not current in his time as expressly stated by Manucci. It is curious that the betel leaves which were cultivated in Yemen and chewed by the Arabs in the middle of the 14th century should not be current in Persia in the middle of the 17th century.

8. The Chinese traveller I-tsing in his *Travels* (or a Record of the Buddhist Religion as practised in India and Malay Archipelago)—(A.D. 671—695) Trans by Takakusu, Oxford, 1896—refers to the use of *betel-nut in the ten islands of the Southern Sea* and the *betel-nut forest in the country of the Naked people* (Nicobar island) in the following extracts :—

Page XXX (General Introduction) —"I sailed to *Eastern India.* Going towards the North from *Ka-Cha* after more than ten days sail we came to the country of the Naked people (*Insulae Nudorum*). Looking towards the east we saw the shore for an extent of one or two Chinese miles with nothing but *cocoa-nut trees and betel-nut forest,* luxuriant and pleasant."

Page 45 — Rules about *Upavasatha* day.

"In the *ten islands of the Southern Sea*............

Then the priests are laid outside the house to wash their hands and rinse their mouths and after this *sugar-water* and *Pin-lang*[18]

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18. "It is called *Pin-lang*, from the Malay *Pinang*, which is the fruit of *Areca Catechu* Sanskrit *Pūga*"—Editor.

(*i.e., betel nuts*) are offered to them in sufficient quantities, then they withdraw from the house.

"On the first day the host prepares a *Pin-lang* nut, fragrant oil[19] prepared from *mustaka* and a small quantity of crushed rice placed on a leaf in a plate etc."

Page 48 — "After the priests have finished eating...Next some *Pin-lang fruit (betel nuts)* and *nutmegs* mixed with *cloves* and *Baros Camphor*[20] are distributed. In eating these they get the *mouth fragrant*, the *food digested* and the *phlegm removed*. These *fragrant medicinal things* and the others are given to the Priests after they have been washed with pure water and *rapped in leaves*."

In the foregoing scanty notes I have tried to record documentary evidence about the use of *Tāmbūla* outside India from c. A.D. 650 onwards in Sumatra, Java, Maldive Islands, Nicobar Islands, South Arabia etc. This evidence is in harmony with the view of MM. Dr. P.V. Kane in his *History of Dharmaśāstra* (B.O.R. Inst., Poona, 1941) Vol. II, p. 734 :— "*Tāmbūla* was probably introduced sometime before or about the beginning of the Christian era in South India and then spread northwards."

Dr. Kane states that *Tāmbūla* is not mentioned in ancient *Gṛhyasūtras* (p.734), though there are references to *Tāmbūla* in *Laghuhārīta Laghvāśvalāyana*, *Varāhamihira*, *Auśanasa*, *Raghuvaṁśa*, (VI. 64) *Kāmasūtra* 1.4,16. etc. (p. 734).

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19. The use of *fragrant oil* in serving the guests after *tāmbūla* is given to them after dinner is very common in Mahārāṣṭra today. The currency of this custom in the islands of the Southern Sea in the 7th century A. D. is note worthy.

20 The use of *camphor* in *Tāmbūla* is mentioned in the drama *Mṛcchakaṭika* (ed. by H. M. Sastri, N. S. Press, Bombay 1910) :—

Page 105 (Act IV)—

"विदूषक :—दीयते गणिकाकामुकयोः सकर्पूरं ताम्बूलम् ।"

The *Nandipurāṇa* refers to *camphor-boxes* and *Tāmbūla boxes* :—

"कर्पूरादेश्च भाण्डानि ताम्बूलायतनं तथा ।"

See 1547 of the *Nirṇayasindhu*, Chowkhamba Series, Benares, 1897, where *Nandipurāṇa* is quoted).

The *Saundaryalaharī* of S'aṅkarācārya (c A. D. 800) (ed. Adyar, 1937, p. 198) refers to *Tāmbūla* and *camphor* (karpūra) as follows :—

"विशालेन्द्रोपेन्द्रैः शशिविशदकर्पूरशकला
विलीयन्ते मातस्तव वदनताम्बूलकवलाः ॥"
(V. 65).

My friend Dr. V. S. Agrawala thinks that "*Tambūla* came into vogue somewhere about the early Gupta period. As a result of India's cultural contact with the Eastern Islands[21] we came to be acquainted with the Tambūlaleaf."

These remarks also get supported by the evidence collected by me so far.

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21. The first colonisation of the Hindus in Malayasia goes back to the 1st or 2nd century A. D. and reaches its high water mark of glory and splendour towards the end of the 7th century A. D. (vide p. 138 of Vol. II of R. C. Majumdar's *Suvarṇadvīpa*, Dacca, 1937). Speaking of the Hindu civilization in *Suvarṇadvīpa* during this period of 500/600 years, Dr. Majumdar refers to the use of betel as a custom of *Ka-la* (Keddah) :—

"The following customs of *Ka-la* referred to by the Chinese are also Indian in origin (See page 122 of *Notes on Malay Archipelago and Malacca compiled from Chinese Sources*' by W. P. Groeneveldt, V. B. G Vol. XXXIX, Part I (Batavia, 1877). When they marry they give no other presents than *arecanuts* sometimes as many as two hundred trays" etc.

15. The Attitude of Hindu Dharmaśāstra towards Tambūla-Bhoga (Enjoyment of Betel)*

Having published several papers on the history of *tambūla* (betel-chewing) in India I developed a desire to study the attitude of Hindu religion towards this gay habit of betel-chewing now current in several parts of India. As a result of my study I have collected some evidence bearing on this attitude. This evidence shows clearly that ***tambūla*** was recognised as an object of enjoyment for a lay person but its use was forbidden in the case of persons who adopted a religious mode of life or observed certain religious vows as a permanent or temporary measure.

According to a verse[1] quoted by the celebrated Gāgābhaṭṭa (c. A. D. 1620-1685) *tambūla* is one of the eight *bhogas* (objects of enjoyment) *viz.* (1) perfumes, (2) woman, (3) clothes, (4) music, (5) *tambūla*, (6) dinner, (7) bed, (8) flowers. That *tambūla* is a *bhoga* (object of enjoyment) was recognised hundreds of years before Gāgābhaṭṭa. In the encyclopaedic work *Manasollāsa* composed by the Cālukya King Someśvara about A. D. 1130 we get regular chapters on the different *bhogas* mentioned in the verse about eight *bhogas* quoted by Gāgābhaṭṭa. These chapters are as follows :—

(1) *Vilepanabhoga* (pp. 85-87 of *Manasollāsa*. Vol. II (1939—G. O. Series, Baroda) deals with *vilepanas* or unguents to be used by the King for different seasons. The *vilepana* called *Sandhya* removes the smell of

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**Journal of Oriental Institute* (Baroda), March, 1952, pp. 270-277.

1. This verse reads as follows :—

"सुगंधवनितावस्त्रं गीतताम्बूलभोजनम् ।
शय्या च कुसुमं चैव भोगाष्टकमुदाहृतम् ॥"

(videpage 3 of *Kayasthadharmapradīpa* by Gāgābhaṭṭa—Appendix अ to "राजवाडेकृत गागाभट्टी" published by K. T. Gupte, Poona, 1919)

Gāgābhaṭṭa refers to the *Tambūli* Caste in the following extracts :—

Page 9 — " स हीनः शूद्रधर्मेभ्यः पर्णवल्लीविधायकः ।
ताम्बूलवल्लीसंभूतं द्रव्यं तस्येह जीवनम ॥
अयमनुलोमस्तांबूली इति मध्यदेशभाषाप्रसिद्धः ।"

Pages 25 — " क्षत्रियात् शूद्रकन्यायामुग्रो नाम प्रजायते ।
मेषादिविक्रयश्चास्य वृत्तिस्ताम्बूलविक्रयः ॥"

perspiration. The *lepana* called *pullinga* is prescribed for the cold season (*Hemanta* and *Śiśira*). The colour of the *vilepana* should harmonise with the dress, which was changed according to seasons.

2. *Dhūpabhoga* (Pages 144-145) deals with the ingredients of different *dhūpas* (incenses) such as (1) *Cūrṇadhūpa*. (2) *Piṇḍadhūpa*, and (3) *Vartidhūpa*, which was placed before the King and queens and also kept before the *Sārīs* of the queens or their hair. Different kinds of incense-holders of gold or silver, with many holes and of the sizes of birds or beasts are mentioned in this chapter.

These two chapters (*Vilepanabhoga* and *Dhūpabhoga*) correspond to the *Sugandhabhoga* of the verse about 8 *bhogas* mentioned above.

3. *Yoṣidbhoga* (pages 145-154) deals with the enjoyment of women. It mentions the qualification of women, whom a King should marry.

This chapter corresponds to *vanitābhoga* of the verse about 8 *bhogas*.

4. *Vastropabhoga* (pages 88-90) deals with the enjoyment of garments. The King should consider auspicious and inauspicious moments for putting on new dress. After applying the *vilepana* to the body the King should call the officer-in-charge of the royal ward-robe and order him to bring excellent clothes of cotton or silk, woven with silver or golden threads of various kinds and colours brought from different countries and wear them. The scheme of clothes recommended for different seasons is as follows :—

(1) *Spring* :—Thin and charming silk or cotton clothes.
(2) *Summer* :—Clothes of white colour. If woolen clothes are worn in summer they should be white, thin, soft and beautiful.
(3) *Rainy Season* :—Red, pink, reddish and dark-red clothes made in an attractive style.
(4) *Autumn* :—Thin clothes dyed with Safflower or lac.
(5) *Cold Season* .—Woolen clothes of various kinds

The clothes worn by the King should suit his own complexion.

5. *Saṅgīta-vinoda* :— This chapter on music forms part of the third and last volume of the *Mānasollāsa*. It is the longest chapter as the author had the greatest interest in the art and science of music. This chapter corresponds to the *Gītabhoga* of the verse about 8 *bhogas*.

6. *Tāmbūlabhoga* (pp. 83-85 of Vol. II of *Mānasollāsa*) describes the use of *tāmbūla* by the King. Betel-nuts for this purpose are to be obtained by the officer-in-charge of *tāmbūla* from places like Vanavāsī. Slices

from the tops of these nuts are removed and then they are dried in the shade. One-fourth of a nut is used in preparing *tambula* for the royal use. This *tambula* consists of 52 yellowish betel-leaves with their ends removed and other ingredients, like pearl-oyster, *Īśavāsa* camphor, *Kastūrī* (musk) and other sweet-smelling things.

This chapter corresponds to the *tambulabhoga* of the verse about 8 *bhogas.*

7. *Śayyābhoga* (pp. 142-144) deals with seven kinds of royal beds, and eight kinds of bed-steads. *Toyaśayyā* (water-bed) to be used in summer was made of leather with water inside. *Haṁsajāśayyā* was a bed prepared from the feathers of *Haṁsa* and used in the spring. A bed of flowers and tender foliage was made for temporary enjoyment. Cotton-bed was to be used in hot season and water-bed at noon time. In Hemanta, Śiśira and rainy season also cotton bed was used. In the autumn the King is advised to use *Dolāmañca* or swinging bed with lotus-filaments inside for the sake of enjoyment.

This chapter corresponds to the *Śayyābhoga* of the verse about 8 *bhogas.*

8. *Annabhoga* (pp. 115-136) deals in detail with the vegetarian and non-vegetarian articles of food and the methods of preparing several dishes suitable for different seasons. This chapter has a definite place in the history of Indian diet when it comes to be written.

This chapter corresponds to *Bhojanabhoga* of the verse about 8 *bhogas.*

9. *Mālyopabhoga* (pp 90-91) deals with the enjoyment of garlands of flowers by the King. These flowers were to be gathered from trees and creepers. Their names are :— *Campaka, Mallikā, Utpala, Pāṭala, Bakula, Surabhi, Karavīra, Śatapatra, Mālatī, Yūthī, Varṇapuṣpa, Iruvaitī, Nevālī,* etc. Some of these flowers were used for preparing perfumed oil in ancient India as they are used today by Indian perfumers. Floral perfumes are appreciated more in India than the synthetic foreign perfumes sold in the Indian market.

This chapter corresponds to the *Kusumabhoga* of the verse about 8 bhogas quoted by Gāgābhaṭṭa.

A glance at the contents of the *Mānasollāsa,* a veritable cultural encyclopædia of the 12th century, will convince any one that Indians of ancient and mediæval times had interest *par excellence* in material cultural advancement as much as they had in spiritual development, which was of

course the coping stone of Indian Civilization. It is no wonder, therefore, that the habit of using *tambūla*, which the Indian Āryans acquired about 2000 years ago from the people of South Sea islands, acquired the status of a *bhoga* (object of enjoyment) in the Indian scheme of *bhogas* (material enjoyment) normally allowed to a house-holder (*gṛhastha*) according to Hindu *dharmaśāstra*.

The use of *tambūla* was forbidden in the case of a *yati* (ascetic) and it would be improper to depict in literature a *yati* chewing *tambūla*. Jagannātha Paṇḍitarāja, the protégé of Shah Jahan (A.D. 1628-1658) in his treatise on poetics called the *Rasagaṅgādhara* (N. S. Press, Bombay, page 51) illustrates *anaucitya* (impropriety) in literature. The study of *nigama* (Veda) by a Śūdra, possession of a wife by a *brahmacārin* (student) and *chewing of tambūla by a yati* - all these are cases of *anaucitya* (" शूद्रस्य निगमाध्ययनम् । ब्रह्मचारिणो यतेश्च ताम्बूलचर्वणम् । दारोपसंग्रहः ... ").

According to *Śivapurāṇa* (Section on *brahmacarya*) quoted in the *Praśastisaṁgraha* by K. Bhujabali Shastri (*Jain Antiquary*, Vol. VI, No2 June 1940) a student (*brahmacārin*) is prohibited to use a comfortable seat and bed and garment, *tambūla*, decoration after bath, tooth-stick, perfumes, etc. (*page 169*—" सुखशय्यासनं वस्त्रं ताम्बूलं स्नानमण्डनम् । दन्तकाष्ठं सुगन्धं च ब्रह्मचर्यस्य दूषणम् ॥"). Evidently a student is to lead a life of hard discipline and concentrate only on his studies. No luxury was allowed to him. "Plain living and high thinking" must be his motto.

According to *Agnipurāṇa* (Chapter 175, folio 123 of Veṅkaṭeśwar Press Edition, Bombay) a person observing *upavāsa* (religious fast) is forbidden to use *tambūla*. He should not drink water repeatedly and indulge in sleep by day and sexual intercourse (" असकृज्जलपानाच्च ताम्बूलस्य च भक्षणात् । उपवासः प्रदुष्येत दिवास्वप्नाच्च मैथुनात् ॥". Even today persons observing *upavāsa* do not use *supāri* (betel nut).

Haribhāskara Agnihotrī (c. A.D. 1675) has recorded some observations on the use of *tambūla* in his work on Dharmaśāstra called the *Smṛtiprakāśa* (MSNo.161 of Viś. I in the Government MSS library at the B. O. R. Institute, Poona). He quotes in this connection *Mārkaṇḍeya-purāṇa*, *Jyotirnibandha*, and authors of some *Smṛtis* like Vasiṣṭha and Āśvalāyana. According to *Āśvalāyana* a person desirous of study should not use *tambūla* frequently by night. Excessive use of *tambūla* leads to paleness, weakness of teeth, diseases of the eye and mouth, and loss of vigour. ("विद्याकामोऽनयं रात्रौ ताम्बूलं न तु भक्षयेत् । तथा—पाण्डुत्वं दंतदौर्बल्यमक्षिरोगं बलक्षयम् । करोति मुखरोगांश्च ताम्बूलमतिसेवनात् ॥"). According to Vasiṣṭha the use of any ingredient of *tambūla* singly or in combination (*i.e.* betel nut, betel leaf

etc.) by an ascetic, a student, a widow. and a woman in menses is tantamount to the use of flesh and wine which is prohibited by *dharmaśāstra* "यतिश्च ब्रह्मचारी च विधवा च रजस्वला। प्रत्येकं मांसतुल्यं स्यात्मेलन सुरया समम् ॥ इति" Haribhāskara explains "क्रमुकादेः प्रत्येकं भक्षणं मांसमुदितं सुरया समानम् इत्यर्थः")

According to *Itihāsopaniṣad* (Sādhale's *Upaniṣadvākyakośa*, Vol. I, 1940, page 290) a person who offers funeral oblations to his ancestors on specific days should avoid the use of tooth-stick, and *tāmbūla*. He should not shave. annoint his body with oil and take food in his own house or in another person's house. He should not use any medicine likely to simulate sexual tendencies

("दन्तधावनताम्बूलं क्षौराभ्यञ्जनभोजनम्। रत्यौषधं परान्नं च श्राद्धकर्ता विवर्जयेत्"–इतिहा ४०)

Lakṣmaṇabhaṭṭa (between A. D. 1580 and 1640 according to Dr. P. V. Kane) has quoted some authors and works in his observations on *tāmbūla* in the Section called *bhojanakiraṇa* of his work "*Ācāraratna* (MS in the Limaye Collection, B. O. R. Institute, Poona). These works andauthors are :—(1) मार्कण्डेयः, (2) माधवीये वसिष्ठः, (3) मदनरत्ने वसिष्ठः, (4) आश्वलायन (5) कृष्णभट्टीय, (6) हेमाद्रौ जाबालिः, (7) बृहन्नारदीय, (8) विष्णुरहस्य, (9) दक्षः, (10) आयुर्वेद (see folio 1656 of the MS). According to *Jābāli* quoted by Hemādri (c. A. D. 1260) *tāmbūla* is forbidden for one who performs *Śrāddha* (funeral oblations) in the following verse which is identical with the verse quoted above from *Itihāsopanisad* :—

"दंतधावनताम्बूलं क्षौराभ्यंगम (जन ?) भोजनम् ।
रत्यौषधि परांन्नं च श्राद्धकृत्सप्त वर्जयेत् ॥"

According to *Āśvalāyana* quoted in the *Ācāraratna tāmbūla* is forbidden to (1) an ascetic, (2) a widow, (3) a *dīkṣita* (one initiated for a religious ceremony) and (4) a *baṭu* (a young *brahmacārin*).

Maithuna[1] (Sexual intercourse) is specially forbidden in the case of these persons. A person desiring to study should not chew *tāmbūla* frequently by night. The pertinent lines are :—

"यतेश्च विधवायाश्च दीक्षितस्य बटोरपि ।
ताम्बूलभक्षणं वर्ज्यं मैथुनं च विशेषतः ॥
विद्याकामोऽनिशं रात्रौ ताम्बूलं न तु भक्षयेत् ।"

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1. Verthema (in his *Travels* (Itinerary), Argonaut Press, London, 1928, p. 58, [*A.D. 1502-1508*] makes some remarks about the King of Calicut. When a near relative of the King died, "*As an act of devotion the King does not sleep with a woman or eat betel for a whole year.*"

(See the lines from *Aśvalāyana* quoted by Haribhaskara Agnihotri referred to by me above).

According to *Kṛṣṇabhaṭṭīya* quoted in the *Ācāraratna* there is no objection to the chewing of *tāmbūla* by a person performing three kinds of *Śrāddha viz.* (1) *nitya-śrāddha* (daily and necessary *Śrāddha*), (2) *āma śrāddha* (*Śrāddha* performed on the new-moon day, and (3) *apara-pakṣika-Śrāddha* (*Śrāddha* performed in the second or dark half of the month). This is the view expressed by *Śātātapa* ("नित्यश्राद्धे स्वमाश्राद्धे श्राद्धे चापरपाक्षिके । ताम्बूलचर्वणे दोषो नेति शातातपोऽब्रवीत् ।").

According to *Bṛhannāradīya* quoted in the *Ācāraratna* a person of great renown (*mahāyaśāḥ*) should avoid the use of perfumes, *tāmbūla* and flowers for three days commencing with *daśamī* (10th day of a lunar fortnight). He should also avoid sexual intercourse during these days.
("दशम्यादि महीपाल त्रिदिनं परिवर्जयेत् । गन्धताम्बूलपुष्पाणि स्त्रीसंभोगं महायशाः ॥")

According to *Viṣṇurahasya* quoted in the *Ācāraratna* a person observing a *vrata* (a religious vow) should entirely avoid the use of *tāmbūla* and the use of oily substances for besmearing the head or other parts of the body, as also the use of unguents for the body ("गात्राभ्यंगं शिरोभ्यंगं ताम्बूलं चानुलेपनम् । व्रतस्थो वर्जयेत्सर्वं यच्चान्यत्र निराकृते ॥")

The attitude of the Hindu *dharmaśāstra* towards the use of *tāmbūla* will be sufficiently clear from the evidence of texts quoted above. This evidence can be supplemented by observations on *tāmbūla* from the numerous texts on *dharmaśāstra*. I hope some close study of these observations will be carried out by experts in this field before long. For the present I close this paper by recording some references to the use of *tāmbūla* in a work on *dharmaśāstra* called the *Smṛtyarthasāra* by Śrīdhara, who flourished between A. D. 1150 and 1200 according to Dr. P. V. Kane. This work has been published in the *Ānandāśrama Sanskrit series* No. 70, Poona, 1912. The following references are taken from this edition :—

(1) Page 6 — Rules about the conduct of a Brahmacārin are mentioned in the following extract :—

'उपाकर्मान्तं सर्वेषां वेदान्द्व्रतम् । तत्र स्त्रीमधुमांसोच्छिष्टशुक्तपर्युषितताम्बूल-दन्तधावनखटशयनदिवास्वापच्छत्रपादुकागन्धमाल्यवर्तनानुलेपनाञ्जनजलक्रीडाद्यूतनृत्यगीतवाद्यालाप-परिवादादीन् ब्राह्मणवर्तनाद्वर्जयेत् ।'

During the period of study a student should avoid women, *tāmbūla*, sleep by day, perfumes, unguents, sporting in water, gambling, dancing,

vocal or instrumental music, slander, stale and used food, umbrella, sandals, tooth-stick, cloth girt round legs and knees while in a sitting posture, etc.

Evidently the above extract enjoins the student to be very seriousand stoic during the period of his study. No modern student would like to undergo such stoic discipline.

Page 17 —Writing about *vivāha* (marriage) Śrīdhara says that in the case of marriage of the *asura* type the offering of betel is sufficient to effect the marriage ("आसुरादिविवाहेषु ताम्बूलमनुमोदनम्").

Page 48 —In his remarks on *pitṛyajña* (offering libations of water daily to ancestors) Śrīdhara states that one can perform all acts connected with this *yajña* such as bath, gifts etc. even after chewing *tambūla* and drinking water, milk and medicine, as also after eating sugar-cane, fruits and roots ("इक्षुनपः फलं मूलं ताम्बूलं पय औषधम् । भक्षयित्वाऽपि कर्तव्याः स्नानदानादिकाः क्रियाः ॥").

Page 55 —Among things to be offered to the *piṇḍas* (rice-balls) for the Manes of ancestors Śrīdhara includes *tambūla*, flowers, incense perfume, etc. ("ततः पिण्डेभ्यो अक्षत-गन्ध-पुष्प-धूप-दीप-वस्त्र-ताम्बूलानि दत्वा etc."

Page 70 —In this remarks on *śayana-vidhi* (use of bed by a house-holder) Śrīdhara says that the house-holder should go to bed with his wife after enjoying perfumes and *tambūla* ("ततः स्वस्त्रिया सह सुगंधलेपनताम्बूलादि सेवमानः स्वपेत्").

It would be seen from the above extracts that the use of *tambūla* wasallowed to a house-holder whose life was given to *bhoga* (material enjoyment) within certain limits. There was no laxity, however, in the rulesfor the life of the *brahmacārin* (unmarried students) which was designed to be austere in every respect, free from the temptationsfor material enjoyment including the use of *tambūla*.

Page 65 —In his remarks about the rules to be followed by a person observing the *Ekādaśī* fast (*i. e.* the religious fast on the 11th day of a fortnight of a lunar month) Śrīdhara states that such a person should avoid (1) sleep by day, (2) sexual intercourse, (3) *tambūla*, (4) frequent drinking of water, (5) speaking with persons of low castes etc.

("दिवास्वापं मैथुनं ताम्बूलादिभक्षणम् असकृज्जलपानं......हीनजातिसंभाषणं च वर्जयेत्")

The evidence recorded in this paper gives a fair idea about the attitude of the Hindu *dharmaśāstra* towards *tāmbūlabhoga* (enjoyment of *tāmbūla*). This evidence can be further clarified by obsevations on *tāmbūla* from other texts on *dharmaśātra* early or late. Some of the late works like the *Nirṇayasindhu* (A. D. 1612) by Kamalākarabhaṭṭa quote many early authorities with regard to the use of *tāmbūla*. These quotations need to be traced to their sources with a view to studying the attitude of the Hindu *dharmaśātra* towards *tāmbūla* in its domestic, social and religious perspective. Topics like the use of *tāmbūla* in religious worship as also the gift of *tāmbūla* and *dakṣiṇā* to Brahmins need to be studied historically.

16. Studies in the History of Tāmbūla: Some Beliefs about the Number of Ingredients in a Tāmbūla.*

I have so far published a few papers on different topics connected with the history of *Tāmbūla*, such as (1) the history of the Indian Nut-Cracker,[1] (2) the history of *Tāmbūla* outside India,[2] (3) the Antiquity of the use of *Chunam* and Catechu in *Tāmbūla*[3], etc. As a result of the interest created by these studies I have received several queries from my friends. One of these friends has asked me to record some evidence about the *number of betel-leaves used in a tāmbūla* and the beliefs associated with such use. I propose in this paper to satisfy the curiosity of my friend by recording the following notes bearing on the topic suggested by him :—

(1) At present it is customary in Mahārāṣṭra to use two *betel-leaves* at all *Pān-Supāri* ceremonies on the occasions of marriages, *muñja* ceremonies, social functions, religious festivals, etc. It is worthwhile investigating if the use of two *betel-leaves* (with a betel-nut or its cuttings) is customary in other provinces of India in the North and the South. Such rigional study would be highly entertaining to the students of Indian Culture and Sociology.

(2) A work on *Dharmaśāstra* called the *Jyotirnibandha*,[4] which is *earlier than A. D. 1524*, contains 24 stanzas[5] dealing with *tāmbūla*. The contents of these stanzas, being of great cultural value, may be briefly indicated below :—

Stanzas 1 & 2 —The auspicious time for chewing *tāmbūla* is explained in detail according to astrological beliefs.

**Journal of the University of Gauhati*, Vol II, No. 1, pp. 73-78.

1. *Bharta Itihāsa Maṇḍala Quarterly*, (Poona, 1948), pages 8-14.
2. *Journal of the Travancore University Manuscript Library*, (Trivandrum).
3. *Asiatic Society, Bombay—Sārdhaśatābdi Commemoration Volume*, Bombay, 1957.
4. *Jyotirnibandha* by S'ivarāja, (Anandashram Sanskrit Series, No 85), edited by R. S. Vaidya, Anandashrama, Poona, 1919).
5. *Ibid.*, p. 235, "*Atha Tāmbūlam—Hastatraye Dvitidvandve.........Sarvada Budhaḥ*" According to S. B. Dīkṣita (*History of Indian Astronomy* in Marathi, Poona, 1896, p.476), the author of *Jyotirnibandha* is S'ivadāsa. This work is mentioned in Pītāmbara's commentary on *Vivāhapaṭala*. It is, therefore, earlier than *śaka 1446* (A. D. 1524). Dīkṣita describes this work as "*Dharmaśāstrapara-muhūrtagrantha*", dealing with *auspicious times according to Dharmaśāstra*.

Stanza 3 —A mouth devoid of the Veda, the juice of *tambūla* and witty sayings is said to be a mere hole (*bila).*

Stanza 4 —One should chew *tambūla* oneself after giving a *tambūla* to the best of Brahmins. Such *tambūla* should be made of good nuts, good leaves and *chunam.*

Stanza 5 —A man who makes a gift of a good *tambūla*, especially to a Brahmin, becomes as beautiful as the God of Love and attains freedom from disease.

Stanza 6 —The gift of *tambūla* is ever-lasting (in merit). The *betel nut* pleases God Brahmā, the *betel-leaves* please God Viṣṇu and the *chunam* pleases God Īśa (Śiva).

Stanza 7 —*Tambūla* being of the nature of Brahmā, Viṣṇu and Śiva, brings prosperity and good fortune. Let all our desires be fulfilled by making a gift of *tambūla.*

Stanza 8 —A *tambūla* with *one nut* is the best, that with *two nuts* bears no fruit, while that with *three nuts* is exceedingly best. The use of *tambula* with more than three nuts, has not been noticed.

Stanza 9 —A *tambūla* with *thirty-two betel leaves* should be given to the king. It is laid down that a *tambūla* to be offered to a tributary prince shouldcontain *twenty-four* betel-leaves.

Stanza 10 —A *tambūla* to be given especially to a *son-in-law* should contain *eighteen betel-leaves*. A learned man should be given a *tambūla* with *twelve betel-leaves* while a bride should be given a *tambūla* with *ten*[1] *betel-leaves.*

Stanza 11 —To all others a *tambūla* of *eight betel-leaves* should be given. The *tambūla* to be given to ordinary persons should be of *four betel-leaves* only.

Stanza 12-13 —A *tambūla* to be given to enemies in particular should contain *six betel-leaves* only. A gift of *betel-nuts* bears fruit in the following order :—

One betel-nut —Profit
Two betel-nuts—Loss

1. Vide *Diary of Peshwa Bajirao II*, (ed. by Lād, 1908), p. 43—Among entries about the menu at the festivals in honour of Gods Gaṇapati and Veṅkaṭeśa we find the following entry about a *tambūla* with *ten betel-leaves* :—*A. D. 1807-1808*—"*Kulapī Viḍa* consisting of 10 ripe betel leaves, 2 cloves, 2 cardamoms, 2 catechu pills, chunam and betel-nut as usual" (Trans. of Marathi extract).

Three betel-nuts —Pleasure or Happiness
Four betel-nuts – Pain or Misery
Five betel-nuts —Long Life
Six betel-nuts —Death

The stem of a betel-leaf is associated with disease, while the end of the leaf is associated with sin.

Stanza 14 —The betel-leaf, which is crumpled, destroys human life, while the veins of the leaf destroy intellect. The roll of a *tāmbūla* should be held with its point in an upward position. A single betel-leaf should also be held with its end up.

Stanzas 15-16 – Chewing a *tāmbūla* with *chunam* applied to it with one's thumb brings wealth. The eating of the end and stem of a betel-leaf, as also two betel-leaves with *chunam* and the eating of a betel-nut without putting a betel-leaf in the mouth produce poverty for seven births and prevent the realisation of God Viṣṇu after death.

Stanza 17 —One should not chew *tāmbūla* without taking *chunam* with one's fore-finger ; if one does so out of ignorance, one goes to the *Raurava*hell.

Stanza 18 —Sorrow, loss, death, want of prosperity and long life are associated respectively with the little finger, the ring-finger, the middle finger, the fore-finger and the thumb.

Stanza 19 —If one chews *tāmbūla* by taking it with his left hand or from the hand of a woman out of ignorance, his wealth comes to an end.

Stanza 20 –The application of *chunam* with the thumb contributes to success in all directions as it undoubtedly leads to victory, acquisition ofa woman and garment.

Stanza 21 –The chewing of *tāmbūla* with the essence of catechu by day is quite becoming. The use of catechu for the same purpose at night will destory the glory of even God Indra.

Stanza 22 —The thirteen qualities[1] of *tāmbūla*, which are unobtainable even in heaven, are its pungency, bitterness, heat, sweetness, saltiness, astringent flavour, capacity to remove *vāta* (*wind* as one of the three humours of the body), its antiseptic character, its capacity to remove phlegm, its capacity to stimulate passion and its capacity to lend beauty to the mouth, to purify it and to remove all bad odour from it.

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1. See my paper on the history of the belief about the 13 qualities of *tāmbūla* in which I have traced the history of this belief up to A. D. 1200.

Stanza 23 —One, who chews *tāmbūla* with preponderance of *betel-nut*, in the morning, preponderance of *chunam* at midday and preponderance of *betel-leaves* at night, attains increasing prosperity.

Stanza 24 —A wise man should always use three parts of *betel-nut*, two parts of *betel-leaf* and one part of catechu (in the preparation of *tāmbūla*).

The foregoing verses are important for the history of *tāmbūla* as they are a detailed record of the beliefs about the use of the different ingredients of *tāmbūla* and the medical properties attached to them. It is possible to trace some of these beliefs in sources earlier than A. D. 1524, which is the later limit to the date of *Jyotirnibandha*. As regards the history of the *number* of each of these ingredients and the beliefs associated with it as given in the above verses, the following table may be recorded to enable scholars to reconstruct such history from sources earlier or later than A. D. 1524 :—

Ingredient of Tāmbūla	Number	Remarks
Betel-nut	1	Best
"	2	Bears no fruit
"	3	Exceedingly best
Betel-leaves	32	For the king
"	24	For a tributary prince
"	18	For son-in-law
"	12	For a learned man
"	10	For a bride
"	8	For all (respectable) persons
"	4	For ordinary persons
"	6	For enemies
Betel-nut	—	For enemies
"	2	Bears fruit
"	3	Brings loss
"	1	Produces happiness
"	4	Causes pain or misery
"	5	Brings long life
"	6	Causes death
Best *Tāmbūla*	*Nut*—3 parts *Leaf*—2 parts *Catechu*—1 part and *Chunam*, etc.	Produces the following qualities :— (1) Pungency. (2) bitterness, (3) heat, (4) sweetness, (5) saltiness, (6) astringency, (7) power to remove *vāta*. (8) antiseptic character, (9) power to remove phlegm, (10) power to excite passion, (11) power to beautify the mouth, (12) power to purify the mouth, (13) power to remove all bad odour from the mouth.

(3) A *tāmbūla* with 32 betel-leaves prescribed for the king in the *Jyotirnibandha* is referred to in a Marathi folk song, in which God Kṛṣṇa is described as sporting among 16000 women with a *tāmbūla* of 32 betel-leaves in his mouth as follows :—

Solāsahasra nārī Kṛṣṇa ghalito dhingāṇā, ।
Battis-pānācā viḍā mukhāta rangaṇā ॥

(Vide p. 16 of *Mahārāṣṭra Sāhitya Patrikā*, Poona, July 1941—article on *Jānapada Ovī* by Anasūyā Bhāgavat). Verily Tāmbūla has been a gay associate of gods and men in India for about 2000 years.

(4) The medical treatise *Aṣṭāṅga-Saṁgraha* by Vāgbhaṭa (c.A.D. 625 or about A.D. 850) prescribes the use of *tāmbūla* after getting up from sleep, after meals, after bath, after vomiting, etc. This *tāmbūla* should consist of 2 betel-leaves, one betel-nut, chunam and catechu. Vide p. 15 of *Sūtrasthāna*, ed. by R. D. Kinjavadekar, Poona, 1940, Chap, III. verses 37-38 :—

"Pathyam suptotthite bhukte snāte vānte ca mānave ‖ 37 ‖
Dvipatramekam pūgam ca sacūrṇa khadiram ca tat"[1]

(5) In the *Hisrory of Śuklayajurvedīya Brāhmaṇas* (in Marathi by N. V. Vaidya Purandare, Bombay, 1884) there are several appendices recorded as sources of evidence. One of these appendices marked "ऊ" is a *Persian farmān* dated Hijri 819 (Śaka 1338), A.D 1416. A translation of this *farmān* was made into English by S. A. F. Moulvi of the Elphinstone High School, Bombay, on *6th October 1883* and submitted to the Court in a case described in the above book. In this *farmān* we get the following references to *tāmbūla* and its ingredients used as a mark of honour under the orders of a Government Officer :—

A.D. 1416 —"Shahāj Khān, the Subhā, orders :—

(1) One *birā* (*viḍā*=*tāmbūla*) (parcel of the betel-nut leaves, consisting of *16 leaves* and *5 nuts*) from every village to be given annually to the said Brahmin (Puruṣottama Rāo, Rājaguru, Kāvale, Paiṭhaṇkar).

(3) If any one were to perform ceremony of *betrothing* one's child, one should send with music publicly a *birā* (*viḍā*) consisting of *50 leaves* and *10 betel-nuts* (as a token of Brahmin's honour) *expressive of an invitation*.

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1. These lines have been qnoted by Hemādri (c A.D. 1260) in his commentary on the *Aṣṭāṅgahṛdaya* (vide pages 25-26 of the edition by Hari Shastri Paradkar, N. S. Press. Bombay, 1938—*Sūtrasthāna*, Chap. II dealingwith *dinacaryā* or daily life of an individual).

(7) *Ṭila* and *bira* (*viḍa*) *i.e.* a mark of red powder on the forehead and a parcel of betel-nut and leaves as a token of respect.

The above extract of *A.D. 1416* shows forcibly the practice of offering *tambūla* with specific ingredients as a *mark of honour* and as a *sign of betrothal*, as current in the Thana District (of the Bombay Presidency) where the family of the Rājaguru Puruṣottama Rao Kāvaḷe resided.

I conclude these notes with a request to scholars in different parts of India to record the beliefs current in different regions about the number of ingredients in a *tambūla*. Side by side with my study of the *history of tambūla* in India I intend to record the *history of regional beliefs about tambūla*, but such reconstruction of the regional history of *tambūla* is almost impossible without a close co-operation of brother-workers interested in the history of Indian Culture.

17. Studies in the History of Tāmbūla — History of the verse about the Thirteen Qualities of Tāmbūla—Between A.D. 1200 and 1900*

During the course of my study of the history of *tambūla* I have often been told by ladies and gentlemen about a *tambūla* with 13 *guṇas* or qualities. I propose in this article to record literary evidence about such a *tambūla* with 13 qualities in particular.

(1) The belief in the numerous good qualities of *tambūla* is reflected in the following *subhāṣita*[1] which actually refers to 1000 qualities of *tambūla* in a hyperbolical style :—

"तांबूलस्य गुणाः संति सखे शतसहस्रशः ।
एकोऽपि च महान्दोषो यस्य दानाद्विसर्जनम् ॥ ७ ॥ "

Translation :—"O friend, there are a thousand good qualities of a *tambūla*; there is, however, one great bad quality associated with it viz. the sending away (of guests) after its bestowal."

(2) The anonymous medical compendium called the *Yogaratnākara* (Ānandāśrama, Poona, 1900) composed before A.D. 1746 contains the following verse mentioning the *13 qualities* of *tambūla* :—

Page 35—"ताम्बूलं कटुतिक्तमुष्णमधुरं क्षारं कषायान्वितं
वातघ्नं कृमिनाशनं कफहरं दुर्गंधिनिर्णाशनम् ।
वक्त्रस्याभरणं विशुद्धिकरणं कामाग्निसंदीपनम्
तांबुलस्य सखे त्रयोदशगुणाः स्वर्गेऽपि ते दुर्लभाः ॥ ६२ ॥"

In view of this verse the belief about the *13 qualitiesof tambūla* appears to have been current in India more than 250 years ago. We must, therefore, try to trace the above verse in sources earlier than A.D. 1700.

(3) In a MS of a work called *Prastāvaratnākara* (No. 320 of 1884-86 in the Govt. MSS Library at the B. O. R. Institute, Poona) the above verse is quoted on *folio 7a* as follows :—

Annals (B.O.R. Institute) Vol. XXXI pp. 138-142.

1. See p. 242 of *Subhāṣita-Ratnākara* (Collection of Witty and Epigrammatic Sayings in Sanskrit) ed. by Krishna Shastri Bhatawadekar, Bombay, 1872. The Index of the first lines of verses given at the end of this book indicates, wherever possible, the sources from which the verses have been taken. The verse about *tambūla* is, however, indicated in the Index as a miscellaneous verse (without a definite source).

"ताम्बूलं कटुतिक्तमुष्णमधुरं क्षारं कषायान्वितं
वातघ्नं कृमिनाशनं कफहरं दुर्गंधनिर्णाशनं ।
वक्त्रस्याभरणं विशुद्धिकरणं कामाग्निसंदीपनं
ताम्बूलस्य सखे त्रयोदश गुणाः स्वर्गेऽपि ते दुर्लभाः ॥"

The *Prastavaratnakara* is a poem treating of various subjects. It was composed by Haridasa, son of Purusottama in *A. D. 1557* (see *Cata. Catalogorum* by Aufrecht, Part I, p. 360).

It is clear from the above evidence that the verse about the 13 qualities of *tambula* is earlier than *A. D. 1557*.

(4) In a MS of *Dhanvantari Nighaṇṭu* (No. 923 of 1884-87) in the Govt. MSS Library at the B. O. R. Institute the verse about the 13 qualities of *tambula* reads as follows :—

Folio 28 —"तांबूलवल्लीगुणाः ॥
तांबू कटुतिक्तमुष्णमधुरं क्षारं कषायान्वितं
वातघ्नं कफनाशनं कृमिहरं दुर्गंधिनिर्णाशनं ।
वक्त्रस्याभरणं विशुद्धिकरणं कामाग्निसंदीपनं
तांबूलस्य सखे त्रयोदशगुणाः स्वर्गेऽपि ते दुर्लभाः ॥"

This MS is dated *Śaka 1605* (= *A. D. 1683*). It contains the text of the *Dravyavali* or the *Dhanvantari Nighaṇṭu* followed by the text of the *Rajanighaṇṭu*. This verse is found in the text of the *Rajanighaṇṭu*, which is called in the colophon as "*Nighaṇṭuśastra*".

(5) The *Rajanighaṇṭu* of Narahari (*c. A. D. 1450*) as printed by the Ānandāśrama, Poona, 1896, also contains the verse in question. It reads as follows :—

Page 131—"ताम्बूलं कटु तिक्तमुष्णमधुरं क्षारं कषायान्वितं
वातघ्नं कफनाशनं कृमिहरं दुर्गन्धिनिर्णाशनम् ।
वक्त्रस्याभरणं विशुद्धिकरणं कामाग्निसंदीपनं
ताम्बूलस्य सखे ! त्रयोदश गुणाः स्वर्गेऽपि ते दुर्लभा : ॥ ४ ॥"

It would be clear from this quotation that the verse about the 13 qualities of *tambula* is earlier than about A. D. 1450.

(6) A work on *dharmaśastra* called the *Jyotirnibandha* by Śivaraja or Śivadasa, published by Ānandāśrama, Poona, 1919, also contains the verse under reference among the 24 verses on *tambula* recorded in this work, which is *earlier than A. D. 1524* according to S. B. Dikshit (vide p. 476 of *History of Indian Astronomy*, Poona, 1896). The verse reads as follows in this work :—

Page 235 —" ताम्बूलं कटुतिक्तमुष्णमधुरं क्षारं कषायान्वितं
वातघ्नं कृमिनाशनं कफहरं कामाग्निसंदीपनम् ।
वक्त्रस्याभरणं विशुद्धिकरणं दुर्गन्धिनिर्नाशनं
ताम्बूलस्य सखे त्रयोदशगुणाः स्वर्गेऽपि ते दुर्लभाः ॥ २२ ॥ "

This evidence corroborates the quotation of the verse in the *Rajanighantu* (c. A. D. 1450).

(7) The Sanskrit anthology called the *Sūktimuktāvali* by Jalhaṇa was composed in *A. D. 1258* for Kṛṣṇa, the Yadava King of Devagiri (Vide p. 12 of Introduction to *Sūktimuktāvali*, Gaikwar Ori. Series, Baroda, 1938). In this anthology some verses are recorded under the topic *bhojana* (dinner). Among these verses we find *two* verses on *tāmbūla* from Varāhamihira (c. A. D. 500) and three anonymous verses on *tāmbūla* including the verse about the 13 qualities of *tāmbūla* which reads as follows :—

Page 402 —" ताम्बू॰ कटुतिक्तमुष्णमधुरं क्षारं कषायान्वितं
वातघ्नं कफनाशनं कृमिहरं दुर्गन्धनिर्णाशकम् ।
स्त्रीसंभाषणभूषणं रुचिकरं शोकस्य विच्छेदकं
ताम्बूलस्य सखे त्रयोदशगुणाः स्वर्गेऽपि ते दुर्लभाः ॥ १३५ ॥ "

The text of the verse shows some variations in this anthology. The expression "कामाग्निसंदीपनं" in line 2 is dropped altogether and in its place the expression "दुर्गन्धिनिर्नाशनं" from line 3 is pushed up. The 3rd line viz. "स्त्रीसंभाषणभूषणं रुचिकरं शोकस्य विच्छेदकं" is altogether new, ousting out the two epithets of *tāmbūla* viz. " वक्त्रस्याभरणं, विशुद्धिकरणं " occurring in subsequent quotations of this verse. Perhaps the text of the verse as quoted by Jalhaṇa is in the oldest form.

It would appear from the evidence recorded so far that the idea about the *13 qualities of tāmbūla* was current in India about A.D. 1200, if not earlier. At this stage of my inquiry about the history of the verse under reference I may raise the following questions for investigation :—

(1) Is Jalhaṇa the author of the verse ?

(2) Can we trace the verse in sources earlier than A.D. 1200 ?

(3) What other texts, excluding those recorded in this paper, quote the verse subsequent to A.D. 1200 ?

In the *Subhaṣitaratnabhaṇḍagaram* (N. S Press, Bombay, 1911) I find the following anonymous verses about *snāna* and *tāmbūla*—

Page 150 —स्नानम् (*Bath*)

" स्नानं नाम मनःप्रसादजननं दुःस्वप्नविध्वंसनं
शौचस्यायतनं मलापहरणं संवर्धनं तेजसः ।
रूपोद्योतकरं गदप्रशमनं कामाग्निसंदीपनं
नारीणां च मनोहरं श्रमहरं स्नाने दशैते गुणाः ॥ १०३ ॥ "

ताम्बूलम्—" तांबूलं मुखरोगनाशि निपुणं संवर्धनं तेजसो
नित्यं जाठरवह्निवृद्धिजननं दुर्गंधदोषापहम् ।
वक्त्रालंकरणं प्रहर्षजननं विद्वन्नृपाग्रे रणे
कामस्यायतनं समुद्भवकरं लक्ष्म्याः सुखस्याश्रदम ॥१०४॥ "

The verse about *tambula* in the above extract is similar to the verse about the 13 qualities of *tambula* which I have traced back upto about A.D. 1250.

In the *Triennial Report* (for 1893-94) by Sheshgiri Shastri MS No. 51 is called चारुचर्या which is ascribed to Bhojarāja. The following lines giving the qualities of *tambula* are found in this MS :—

" तदुक्तं चारुचर्यायाम्—
मनसो हर्षणं श्रेष्ठं रतिदं मदकारणम् ।
मुखरोगहरं हृद्यं दीपनं बस्तिशोधनम् ॥
मुखशुद्धि कृमिहरं ताम्बूलं श्रीकरं परम् । "

One of the best and perhaps the earliest stanza describing the good qualities of *tambula* is the following, found among the three stanzas on *tambula* in chapter 77 of the *Bṛhatsaṁhita* of Varāhamihira (c. A. D. 500) which describes the preparation of perfumes (*gandha-yukti*):—

" कामं प्रदीपयति रूपमभिव्यनक्ति
सौभाग्यमावहति वक्त्रसुगंधिता च ।
ऊर्जं करोति कफजांश्च निहन्ति रोगान्
ताम्बूलमेवमपरांश्च गुणान् करोति ॥३५॥ "

V. Subrahmanya Sastri in his edition of the *Bṛhatsaṁhita* (Bangalore, 1947) Vol. II, p. 612 translates the above stanza as follows :—

" Betel stimulates love, sets off the physical charm, creates popularity, gives good smell to the mouth, strengthens the body and dispels diseases arising from the phlegm. It also bestows many other benefits "—*Śloka 35.*

The above verse contains a major number of the good qualities of *tambula* out of the number recorded in the verse about 13 qualities of *tambula*. I cannot, however, say if the verse of Varāhamihira about *tambula* quoted above has influenced subsequent verses about the *guṇas* of *tambula*, some of which have been recorded by me in this paper.

18. Studies in the History of Tāmbūla—The Amatory Perspective of the Matrimonial Custom of cutting the Betel-Leaf roll (viḍi)*

As a result of my studies in the history of *Tāmbūla* I have been led to study some of the customs associated with it such as exchange of *tāmbūla* as a sign of betrothal or marriage, and *tāmbūla* as a token of honour, as a token of a vow or pledge, as a token of love etc. In Mahārāṣṭra a peculiar custom has been current in connection with marriage ceremonies. At marriage dinners the bride and bridegroom are made to sit, facing each other. A small roll of betel-leaves called *viḍi* (Sanskrit *viṭikā*) is then given to the bride, who holds one end of it fast by the front teeth. The relatives and guests assembled, all in a jovial mood, give a signal to the bride and bridegroom to snap asunder the roll or *viḍi* by a simultaneous downward jerk of their mouths. No sooner is the signal given than the *viḍi* is cut asunder, much to the inward but suppressed joy of the bride and the bridegroom and the hilarious merriment of the young and old relatives and guests, who watch the fun with great satisfaction and approval. The performance is repeated a few times by the bride and the bridegroom in response to the demand of the spectators. When the dinner begins the guests insist on another performance viz. the putting of a morsel of food by the bridegroom into the mouth of the bride.

In cutting the *viḍi* (betel-leaf roll) the faces of the bride and the bridegroom come into close contact, which is the nearest approach to a kiss before the public, otherwise prohibited in Hindu society.

The Marathi Dictionary called the *Śabdakośa* (by Y. R. Date and C. G. Karve, Poona, Vol. VI (1938) p. 2827) records the word *viḍi* in the sense of *tāmbūla*. The usages of this word given by the authors of this Dictionary are as follows :—

(1) " विडि करूनि समर्पि महासती "

— Narahari, *Dānavrata* 17

(2) " राव होता सुखसदनीं । विडिया देतसे मोहिनी ॥ "

—*Kathākalpataru* by Kṛṣṇayājñavalki 2. 9. 93

(3) " घरा शांतता खाउंया विडी । "

—*Lāvṇya* (Ballads) by Honāji Bāḷ (Poona, 1924) —No. 83

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*Poona Orientalist, Vol. XIV, Nos. 1-4, pp. 78-84.

This Dictionary also refers to the matrimonial custom of "Cutting the *viḍi* or *viḍī*" as follows :

> लग्नसमारंभांत वधूवरांस तोडण्यासाठी देण्यांत येणारी पानाची सुरळी, लवंग खोबऱ्याची काचळी etc. "
>
> (A roll of betel-leaf, a clove,[1] a slice of copra etc. given to the bride and the bridegroom for cutting by the teeth at marriage ceremonies)

No documentary reference to this matrimonial custom is given in this Dictionary. It is for scholars in the field of Marathi literature to record at least a few references to this custom from sources early or late.

The *Marathi—English Dictionary* by Molesworth and Candy (Bombay, 1857) p. 757, refers to the custom of "Cutting the viḍī" as follows :—

> "विडी —At weddings. A roll of the leaf of piper-betel or a piece of coconut, or a clove put into the mouth of the bride or bridegroom, for him or her to tear it out with the teeth."

This reference to the custom of "cutting the *viḍī*" at weddings needs to be supported by references to this custom in Marathi sources prior to 1857. We must also investigate and record any references to this custom by foreign travellers in their travel-books or other records, so far known or published.

The *Bombay Gazetteer*, (Vol. XVIII, Part I (Poona), Bombay, 1885, p. 213, describes the marriage ceremonies of the *Pātāne Prabhu Caste.* In the description of the dinner after a wedding we find a reference to the custom of "Cutting the *viḍī* in the following extract :—

> *Page 213* —" In the after-noon the bride and bride-groom eat from the same leaf-plate, feeding one another in the presence of the women and children of the house. When the meal is over small round betel-leaf parcels are given to the boy and girl. *The bride holds one end of the rolled leaf in her teeth and the bride-groom bites off the other end.*"

The origin of the custom of "Cutting the *viḍī*" and its history cannot be traced on the strength of documentary evidence in the present state of my inquiry. I shall, however, try in this paper to paint the romantic back-ground of the use of *tāmbūla* between lovers or between

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1. Cutting a clove by mouths facing each other, though a difficult operation, is perhaps more enjoyable to the bride and the bridegroom as it brings their mouths in close contact, which is virtually a kiss.

husband and wife, the history of which can be established for about 2000 years. Perhaps "Cutting the *viḍī*" is the first step in the use of *tāmbūla* authorized by society between the husband and wife in the amatory way. The capacity of *tāmbūla* to stimulate passion has been expressly recognized by the celebrated Indian astronomer Varāhamihira (*c. A.D. 500*) in the following stanza in Chapter 77 of his *Bṛhatsaṁhitā*:—

"कामं प्रदीपयति रूपमभिव्यनक्ति
सौभाग्यमावहति वक्त्रसुगंधिता च ।
ऊर्जं करोति कफजांश्च निहन्ति रोगान्
ताम्बूलमेवमपरांश्च गुणान् करोति ॥३५॥"

(*Betel* stimulates love, sets off the physical charm, creates popularity, gives good smell to the mouth, strengthens the body and dispels diseases arising from the phlegm. It also bestows many other benefits).

The amatory property of *tāmbūla*, is one of the 13 recognized qualities of *tāmbūla*, the history of which I have proved in a special paper.[2]

Veṅkaṭanātha in his *Saccaritrarakṣā* (edited by Śrīnivāsācārya svāmi, Venkateśvara Press, Bombay, 1909, p. 96) records the following quotation from a work called *Viṣṇutattva* (yogapāda) *antima paṭala* :—

"शेषभुक्तिं प्रशंसन्ति मुनयस्तत्त्वदर्शिनः ।
युवानः खलु वाञ्छन्ति ताम्बूलं तरुणीमुखात् ॥"

Śeṣa-bhukti" (eating the leavings or remainder) is praised by sages (as it is a token of extreme affection); young men have a longing for *tāmbūla* from the mouths of young damsels. In this passage we have by way of example a reference to the practice of eating *tāmbūla* in its amatory perspective.

Vātsyāyana in his *Kāmasūtra* (chapter XXIV—*Pāradārika Adhikaraṇa*, p. 266 of N. S. Press Edition, Bombay, 1900) describes in detail the technique to be followed by a lover in his advances to a married woman. In this connection he observes as follows :—

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2. Vide *Annals* (B. O. R. Institute, Poona, 1951) Vol XXXI, pp. 138-142. The verse about the 13 qualities of *tāmbūla* as found in *Jyotirnibandha* of Śivadāsa (before A. D. 1524) reads as follows:—

"ताम्बूलं कटु तिक्तमुष्णमधुरं क्षारं कषायान्वितं
वातघ्नं कृमिनाशनं कफहरं कामाग्निसंदीपनम् ।
वक्त्रस्याभरणं विशुद्धिकरणं दुर्गन्धिनिर्नाशनम्
ताम्बूलस्य सखे त्रयोदशगुणाः स्वर्गेऽपि ते दुर्लभाः ॥"

" He should kiss and hug a child as a symbol of the woman, put *betel (tambūla) in its mouth with the help of his tongue* etc.

("बालचुम्बनमालिङ्गनं च, जिह्वया चास्य ताम्बूलदानं" etc.)

This is perhaps the earliest prescription of *tambūla* for amatory purposes by an authority on the art of love. Our matrimonial custom of "Cutting the betel-leaf roll" *by the bride and the bridegroom* with their mouths close to each other is an authorised step in the technique of love-making after marriage. Unlike Vātsyāyana's prescription it is considered perfectly moral and decent as it is within the sacred enclosure of matrimony.

Dāmodara Gupta (A.D. 755-786) in his didactic poem *Kuṭṭanīmata* (ed. by T. M. Tripathi, Bombay, 1924) describes the life of the courtezan Mālatī living in Benares. In the following verse 549 (page 163) this courtezan refers to the use of chewed *tambūla* put by the lover into the mouth of the beloved in an amatory way.

"लाभः स एव परमः पर्याप्तं तेन तृप्ताऽस्मि ।
विनिवेश्य यदुत्सङ्गे निक्षिपति मुखे मुखेन ताम्बूलम् ॥ ५४९ ॥"

The learned editor Mr. T. M. Tripathi[3] in his Sanskrit commentary on the above stanza observes:—

" स्वचर्वितं ताम्बूलं मामङ्के स्थापयित्वा मदुपभोगाय मम मुखे सञ्चारयति तेनालं सन्तुष्टाऽस्मि, विषयुक्तशेषं प्रियया सप्रेम भुज्यते प्रियप्रसाद इति । तथा चोक्तं—"उत्साहसीमाहि पतिप्रसादः ।"

(*Vikramāṅkadevacarita* of Bilhaṇa—c.A.D. 1050—Sarga X, verse 38)

The poet Śrīharṣa in his *Naiṣadhacarita* of 12th Cent. A.D. (English Trans. by K. K. Handiqui, Lahore, 1934) describes in Chapter XX Nala's jesting with Damayanti, recalling various experiences of their conjugal love. In this connection Nala says :—

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3. Tripathi quotes the following stanza bearing on the importance of *tambūla* :—

" धिक् ताम्बूलविहीनमाननबिलं धिक्पुण्ड्रहीनं मुखम्
धिग्वेदोक्तिविवर्जितां च रसनां, धिक्पाणिमस्वर्णदम् ।
धिग्ग्रामं च तरङ्गिणीविरहितं धिक्प्राज्ञहीनां सभाम्
धिग्भुक्तं घृतवर्जितं, धिगबलाशून्यां च शय्यामपि ॥ "

"Fie upon the mouth-hole without tāmbūla, a face without the fore-head mark, a tongue devoid of the recitation of the Veda, a hand that does not give gold, a village without a river, an assembly without a learned man, a dinner without ghee, and a bed without a woman !"

Chap. XX, verse 82 —

" जागर्ति तत्र संस्कारः स्वमुखाद्भवदानने ।
निक्षिप्यायाचितं यत्ता न्यायात्ताम्बूलफालिकाः ॥ ८२ ॥ "

Page 292 —(" Dost thou recollect, after passing bits of betel from my mouth into thine, I justly demanded them back ").

Tripathi quotes the following anonymous stanza in his commentary on verse 549 of *Kuttanimata* (Bombay, 1924, p. 163) :—

A lover addresses his beloved and asks for *tambula* from her mouth as follows :—

" तालाकारपयोधरे तनुभुजस्तम्भाधिकारप्रिये
ताम्यन्मध्यलते तडित्समरुचे तन्वीसमालापिनि ।
ताटङ्कान्ततरङ्गिताक्षियुगले तन्वङ्गि ताम्राधरे
तारानाथनिभानने तव मुखात्ताम्बूलमादीयताम् ॥ "

Other verses quoted by Tripathi in the same context are noteworthy. They are as follows :—

A gallant asks his lady-love for tambula :—

" त्वन्नेत्राञ्चलवत्प्रदीपितपदं त्वन्मध्यवन्मुष्टिना
ग्राह्यं, त्वत्कुचकुम्भवन्नखमुखव्यापारलीलास्पदम् ।
त्वच्चेतोवदमन्दरागजननं, त्वन्मूर्तिवत्कामदम्
स्वादिष्टं च तवोष्ठवत्, तरुणि मे ताम्बूलमानीयताम् ॥ "

The following stanza states that a man who does not chew *tambula* early in the morning, at dinner-time, in the company of a woman and in the assembly of learned men at the royal court, is a veritable beast :—

" प्रत्युषसि भुक्तसमये युवतीनां चैव संगमे विरमे ।
विद्वद्राजसभायां ताम्बूलं यो न खादयेत्स पशुः ॥ "

The *Srngaramrtalahari* refers in the following stanza to a lover putting a *viti* (= *tambula*) into the mouth of his beloved :—

" अन्यास्ताः सखि योषितः सहचरं लावण्यलीलाग्रहाः
सेवाभिः प्रचुराभिरुन्मिपदुरुप्रेमाणमातन्वते ।
अस्माकं तु समीरणं वितनुते चेलाञ्चलैरादराद्-
वीटीमाननपङ्कजे विसृजति प्राणेश्वरः किं क्रिये ॥ "

The betel-chewing has been a gay associate of the Aryans in India for about 2000 years as proved by the evidence recorded by me in the present paper. This evidence needs to be increased on the strength of the varied sources of Sanskrit poetry and rhetoric, which are likely to yield charming material bearing on the amatory aspects of *tāmbūla*. At present the three Ts of Indian social life are : (1) **Tea**, (2) **Tobacco** and **Tāmbūla**, of which *tea* and *tobacco* entered India after A.D. 1600 while *Tāmbūla* entered India during the early Gupta period and completely naturalised itself in Indian life and culture to such an extent that its foreign origin was entirely forgotten.

19. Studies in the History of Tāmbūla — Use of Lime (Cūrṇa) and Catechu (Khadira) in Tāmbūla and its Antiquity – c.A.D. 100-1900*

After my paper[1] on the history of *Indian Nut-Cracker* (A.D 1300-1800) was published, a friend of mine suggested that I should write a paper on the history of the *lime-pot* used for keeping lime or *chunam* by persons who eat *tambūla*, a combination of the *betel-nut*, *betel-leaf*, *catechu* and other spicy ingredients. I agreed to this suggestion and began to hunt up references to lime-pot in literary sources known to me. Unfortunately in the material about *tambūla* collected by me I could not locate any definite references to the lime-pot as such though we have reason to believe in the existence of some lime-pot since our ancestors began to use *chunam* or lime as an ingredient of *tambūla*. It is, therefore, necessary to prove the antiquity of *lime* (= *cūrṇa* in Sanskrit) as used in *tambūla* as also of *catechu* (=*Kat* in Marathi) as the combination of the *chunam* and *catechu* in the mouth reddens the mouth of the person chewing *tambūla*.[2]

(1) Raghunatha Paṇḍita in his *Rājavyavahārakośa* (c.A.D. 1676) refers to *lime* as चूना ("चूना नाम भवेच्चूर्णम्") and *lime-pot* as चुनाल ("चुनालः स्यात् चूर्णपात्रम्") as I have already pointed out in my paper on the Nut-Cracker referred to above.

(2) The Marathi Dictionary called the *Śabdakośa* (by Y. R. Date and C. G. Karve, Vol. III, p. 1210) records the following words for *lime-pot* :—

" चुनळ, चुनाळ, चुनाळें "

and derives them from Sanskrit चूर्ण + आलय (= चूर्णालय)=चूर्णपात्र of the

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Sardhasatabdi Commamoration Volumo, Asiatic Society, Bombay, 1957, pp. 65-77.

1. Bharatalıtibasa Mandal Quarterly, Poona, 1948, pp. 8-14.

2. Cakrapāṇinātha in his *Bhāvopahāra* (Kashmir Sanskrit Serles, No. 14, Srinagar, 1918, pages 36-37) refers to *tambūla* in the following stanza 39 :—

" स्वर्हविमन्दनानन्द नागवल्लीदलोज्ज्वलम्
स्फुरत्स्पर्शेन्दुसुरभि ताम्बूलं ते निवेद्यते ॥ ३९ ॥ "

The commentary of Ramyadeva Bhaṭṭa on this stanza explains *tambūla* as "[illegible]." This etymology of *tambūla* needs to be examined. It is indeed highly imaginative.

Rajavyavaharakośa. So far I have not traced any usages of the चूर्णपात्र or चूर्णालय in the Sanskrit sources

The *Śabdakośa* does not record any usages for the words about *lime-pot* referred to above.

(3) The habit of chewing the *tambula* is current in Indo-China. This habit has a great antiquity as I am informed by my friends at Hanoi, one of whom has sent me a version of a story about its origin which I am appending to this article. Consistent with this tradition is the discovery of a *lime-pot* at *Thanh-hoa* (in Northern Annam) by O.R.T. Janse, who led an expedition to Indo-China and the Philippines and published his report on it in the *Harvard Journal of Asiatic Studies* (June 1941). A photograph of this lime-pot will be found on Plate XXV. This *lime-pot* is one of the articles of the *Sung* and *Ming* dynasties discovered by Janse. Prof. P. K. Mukherji in his *Indian Literature in China and the Far East*, Calcutta, 1931, records the following chronology of the *Sung* and *Ming* dynasties in his list of the Translators of the Chinese *Tripitaka*—(Pages 3-4)—Later (Northern) *Sung* dynasty A.D. 960-1127 K'aifung (Honan)—Southern *Sung* dynasty—A.D. 1127-1280—*Ming* dynasty—AD 1368-1644. It is not clear from Janse's Report whether the *lime-pot* belongs to the *Sung* or the *Ming* dynasty. We may, however, conclude that it belongs to the period A.D. 960-1644 and hence cannot prove the use of *lime* in *tambula* in Indo-China prior to A.D. 960.

(4) In the article on *Chunam* in the *Hobson-Jobson* (by Yule and Burnell, London, 1903, pp. 218-219) we get the following dated references to the use of *lime* in *tambula* :—

A.D. 1510—"And they also eat with the said leaves (betel) a certain lime made from *oyster shells*, which they call *cionama*."

—*Varthema*, 144

A.D. 1563 —"...So that all the names you meet with that are not Portuguese are Malabar, such as *betre* (betel), *chuna*, which is *lime*......"

—*Garcia*, fol.37g

A.D. 1610—"*Chunan*"—Pyrard de Laval, ii. 84 (Hak. Soc. ii, 135).

A.D. 1614 —"Having burnt the great idol into *Chunah* he mixed the the *powdered lime* with *pan* leaves and gave it to the Rajputs that they might eat the object of their worship."

—*Ferishta*, quoted by *Quartremére Not et ...Ext XIV* 510

A.D. 1673 —"The natives chew it (betel) with *Chinam* (lime of Calcind Oyster Shells)." —*Fryer*, 40

A.D. 1689 — "*Chinam* is Lime made of Cockle-Shells or Limestone; and *Pawn* is the leaf of a Tree."

—*Ovington*, 123

These references[3] clearly prove the use of *lime* in *tāmbūla* and in particular of the *lime prepared* from *Oyster Shells* or *Cockle-Shells*, which is even now used in some parts of India.

(5) From the reference to the use of *lime from Oyster Shells* in *tāmbūla* made by Varthema in A.D. 1510 we now turn to the section on *tāmbūla* (*tāmbūlabhoga*) of the *Mānasollāsa* (c.A.D. 1130) of king Someśvara. In this section the *lime from pearl-oysters* is prescribed for use in *tāmbūla* or *vīṭaka* (Marathi *viḍā*) as follows :—

"मुक्ताशुक्तिभवं चूर्णं वीटकेषु नियोजितम् "

[See p. 84 of *Mānasollāsa*, Vol. II (G. O. Series, Baroda, 1939)]

The use of lime in *tāmbūla* is thus clearly established from c.A.D. 1100 up to the present day.

(6) In The Tāntrika treatise on Yoga called the *Śiva-Saṁhitā* (3rd Edition, Pāṇini office, Allahabad, 1942) we find the following references to *tāmbūla* including a reference to "*Cūrṇa*" or lime :— *Page 32* — The Yogi should try to attain success in Yoga by the following means :—

"He should use clarified butter, milk, food, and *betel without lime*, camphor, husked sweet grains, pleasant monastery or retired cell, having a small door etc."

"घृतं क्षीरं च मिष्टान्नं ताम्बूलं चूर्णवर्जितम् ।
कर्पूरं निस्तुषं मि॰ सुमठं सूक्ष्मरन्ध्रकम् ॥ ४० ॥"

On p. 58, however, *tāmbūla* has been definitely mentioned among the impediments of Yoga as follows—

"नारी शय्यासनं वस्त्रं धनमस्यविडम्बनम् ।
ताम्बूलं भक्ष्ययानानि राजैश्वर्यविभूतयः ॥ ३ ॥
भोगरूपा इमे विघ्ना धर्मरूपानिमाञ्छृणु ॥ ६ ॥"

Trans.—"Women, beds, seats, dresses and riches are obstacles to Yoga. *Betels*, dainty dishes, carriages, kingdoms, lordliness and powers etc."...... These are the obstacles which arise from *Bhoga* (enjoyment) etc."

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3. Bernier's reference (c.A.D. 1660) to *tāmbūla* may be added to the references from the Hobson-Jobson. It is as follows:—

"*Betel* is a small parcel made of aromatic leaves and other ingredients mixed up with a little of the *lime made from sea-shells*, this colours the lips and mouth red and aggreeably perfumes the breath." (pp. 13-14 of Travels, London, 1891).

Narayanatirtha in his commentary *Yogasiddhanta-candrika* (Chowkhamba Sans. Series, Benares, 1910, p. 100) refers to *tambula* without lime in the following verse :—

"कर्पूरं मधुरं स्निग्धं गम्यं ताम्बूलमेव च।
चूर्णेन रहितं धातुपोषणं योगिनां शुभम् ॥"

(7) The earliest datable reference to the use of *curna* or *lime* or *chunam* in *tambula* so far traced by me is found in the section on Perfumes (*Gandhayukti* of the *Brhatsamhita* (c.A.D. 500) of Varahamihira (Chap. 77, Verses, 35 36. 37 dealing with *tambula* — pages 612-613 of the Edition with Eng. Trans by V. Subrahmanya Sastri. Bangalore, 1947). This reference is as follows :—

" युक्तेन चूर्णेन करोति रागं
रागक्षयं पूगफलातिरिक्तम् ।
चूर्णाधिकं वक्त्रविगंधकारि
पत्राधिकं साधु करोति गन्धम् ॥ ३६ ॥"

Translation —"A moderate dose of *lime* used with betel-leaves gives good colour ; an extra quantity of areca nut spoils the colour : excessive lime produces bad smell in the mouth, but an extra quantity of betel-leaf pleasant smell." Lime by itself with betel-leaf may not produce red colour in *tambula* when chewed. At present deep red colour[4] is obtained by the combination of *lime* and *catechu* (Marathi *Kat*) in the *tambula*. We must, therefore, record evidence about the use of *catechu* in *tambula* from Sanskrit and non-Sanskrit sources.

(8) The *Susrutasamhita* (N. S. Press, Bombay. 1938) mentions the use of *curna* or lime in *tambula*. in the following verse 21 of Chap. 24 of *Cikitsasthana*:—

" कर्पूरजातीकक्कोललवङ्गकटुकाह्वयैः ॥
सचूर्णपूगैः सहितं पत्रं ताम्बूलजं शुभम् ॥ २१ ॥ "

Tambula is also mentioned in the following verses of Chap. 46 of the *Sutrasthana* :—

4. *Rajanighantu* of Narahari (c.A.D. 1450) refers to the dye-producing properties of *Khadera* (*Khadira sara*) or extract from the Khadira tree '*Catechu*) in the following verse (p. 13. Anandasrama Edition. Poona. 1896) : -

" खादिरः खदिरोद्भूतः तत्सारो रक्तदः स्मृतः ।
क्षेपः खदिरसारश्च तथा रक्तः पत्राह्वयः ॥ ४१ ॥ "

Page 249 — ......"तस्माद्धुक्केरितं कफम् ॥ ४८४॥
धूमेनापोह्य हृद्यैर्वा कषायकटुतिक्तकैः ।
पूगकङ्कोलकर्पूरलवङ्गसुमनःफलैः ॥ ४८५ ॥
फलैः कटुकषायैर्वा मुखवैशद्यकारकैः ।
ताम्बूलपत्रसहितैः सुगन्धैर्वा विचक्षणः ॥ ४८६ ॥"

(9) The *Carakasaṁhitā* also mentions *tāmbūla* in the following verses of Chap. 5 of *Sūtrasthāna* (p. 42 of N. S. Press Edition, Bombay, 1941) :—

" धार्याण्यास्येन वैशद्यरुचिसौगन्ध्यमिच्छता ॥ ७६ ॥
जातीकटुकपूगानां लवङ्गस्य फलानि च ।
कक्कोलस्य फलं पत्रं ताम्बूलस्य शुभं तथा ।
तथा कर्पूरनिर्यासः सूक्ष्मैलायाः फलानि च ॥ ७७ ॥ "

There is no reference to *cūrṇa* or lime in the above ingredients of *tāmbūla* mentioned in the early medical text of the *Carakasaṁhitā*. We must go through the whole text of this work and see if *cūrṇa* as an ingredient of *tāmbūla* has been mentioned in some other context.

(10) The *Rājanighaṇṭu* of Narahari (c. A. D. 1450) records the following verses about *cūrṇa* on p. 132 of the *Ānandāśrama* (Poona, 1896,) Edition of this work :—

गुणाः—"चूर्णं चार्जुनवृक्षजं कफहरं गुल्मघ्नमर्काह्वयम्
शोफघ्नं कुटजं करञ्जजनितं वातापहं रुच्यदम् ।
पित्तघ्नं जलजं बलाग्निरुचिदं शैलाह्वयं पित्तदम्
स्फाटिक्यं दृढदन्तपङ्क्तिजननं शुक्त्यादिजं रुच्यदम् ॥ २० ॥
ताम्बूललक्षणम्—
पर्णाधिक्ये दीपनी रङ्गदात्री
चूर्णाधिक्ये रूक्षदा कृच्छ्रदात्री ।
साराधिक्ये खादिरे शोषदात्री
चूर्णाधिक्ये पित्तकृत्पूतिगन्धा ॥ २१ ॥ "

Verse 20 in the above extract mentions the properties of *cūrṇa* from the *Arjuna* tree. *Kuṭaja* plant etc. The *cūrṇa* from *śukti* (pearl-oyster) mentioned last in this verse is identical with the *lime* from oyster-shells used in *tāmbūla*. *Verse* 21 definitely deals with *cūrṇa* or *lime* and its use as also the use of *Khadirasāra* or *catechu* in *tāmbūla*. This verse may be compared with verse 36 in the *Gandha-yukti* section of the *Bṛhatsaṁhitā* quoted above,

(11) The *Aṣṭāṅgasaṁgraha* (c. A.D. 925 according to Hoernle, or 8th-9th cent. A.D. according to Prof. Dineshchandra Bhattacharya) of

Vāgbhaṭa definitely refers to *Cūrṇa* (lime) and *Khadira* (catechu) in *tāmbūla* in the following verses (34-38) of Chap. 3 of *Sūtrasthāna* (ed. by R. D. Kinjawadekar, Poona, 1940, p. 15) .—

" रुचिवैशद्यसौगन्ध्यमिच्छन्वक्त्रेण धारयेत् ॥
जातीलवङ्गकर्पूरकङ्कोलकटुकैः सह ॥ ३५ ॥
तांबूलीनां किसलयं हृद्यं पूगफलान्वितम् ॥
रक्तपित्तक्षतक्षीणरूक्षोत्कुपितचक्षुषाम् ॥ ३६ ॥
विषमूर्च्छामदार्तानामपथ्यं शोषिणां च तत् ॥
पथ्यं सुप्तोत्थिते भुक्ते स्नाते वान्ते च मानवे ॥ ३७ ॥
द्विपत्रमेकं पूगं च सचूर्णखदिरं च तत् ॥ "

(12) The importance of the medical properties of the Khadira (Acacia Catechu) and its products was recognized more than 2000 years ago as will be seen from the references to Khadira by Caraka, Suśruta, Vāgbhaṭa, Hārīta, Cakradatta. *Dhanvantari-Nighaṇṭu*, Vṛnda, Soḍhala, Bhāvamiśra (*Bhāvaprakāśa*) etc. collected by my friend Vaidya B. G. Shah (Pages 452-458 of the *Nighaṇṭu Ādarśa*, Part I, Ahmedabad, 1927). R. N. Khory in his *Materia Medica* II, 184, records the *Actions and use of catechu* as follows :—

"Powerful astringent, stronger than Kino, anti-periodic and *digestive*. Its action is due to the *tannic acid* it contains. It is a powerful astringent to the mucous membranes, given in dyspepsia attended with pyrosis, and in diarrhoea in children ; in dysentery, intermittent fevers and scurvy; as a gargle in hoarseness of voice and sore throat. Locally as a dusting powder, hypertrophied relaxed tonsils, ulcerated and spongy gums and to control passive haemorrhages.

(13) The combination of the decoction of the *khadira* (*Catechu*) and *Kramuka* (betel-nut) is prescribed in urinary troubles by the *Suśrutasaṁhitā* (N. S. Press, Bombay, 1933, p. 452)—*Cikitsāsthāna*, Chap. 11, Sec[illegible] follows :—

"श्वेतमेहिनं कदर-क्रमुक-कषायं...पाययेत् ॥ ६ ॥"
(variant "कदर-क्रमुक कषायं")

[illegible]explained as *white catechu* by the lexicons *Vaijayantī* —"सिते तु कदरः खदिरः" and *Medinī* (c.A.D. 1200-1275)—

In the *tambūla* also there is a combination of *kramuka*[5] (betel nut) and khadira (catechu).

(14) The *Carakasamhitā* (N. S. Press, Bombay, 1941) givesrecipes of (1) a pill (*guṭikā*) of *Catechu* (*Khadira-sāra*) and (2) oil from *Catechu* in the *Cikitsāsthāna*, Chap. 26, verses 206-214 (p. 609). These recipes are prescribed for persons suffering from *mukharoga* (diseases of the mouth). The recipe of the *Khadira-guṭikā* contains numerous ingredients like चन्दन (sandal), लवङ्ग (clove), कक्कोल, जातिकोश (nutmeg or its outer covering), मञ्जिष्ठा, धातकी, एला (cardamom) etc. Some of these ingredients are used at present in *tambūla*. The verses referred to above begin with "तुलां खदिरसारस्य" and end with "खदिरादिगुटीकेयं तैलं च खदिरादिकम्." In this *Khadira-Guṭikā* of Caraka we have the ancestor of our modern scented *Kāt-goḷi* or *Catechu pill* used in *Tambūla*.

(15) The definite *Catechu pill* (Kāt-goḷi) used in *tambūla* is described in detail by Someśvara in his *Mānasollāsa* (Section on *Tambūla* called *tambūla-bhoga*) — Vol. II (G. O. Series, Baroda, 1939), p. 85 :—

(खदिरगुटिका)—"खदिरक्वाथचूर्णं तु कस्तुरीत्तोदमिश्रितम् ॥ ६७४ ॥
श्रीखण्डकल्कसंयुक्तं कर्पूररजसान्वितम् ।
मेलयित्वा समैर्भागैर्गुटिका कल्पिता शुभा ॥ ६७५ ॥
त्रिदोषशमनी कण्ठ्या दन्तानां च बलावहा ।
(खदिरसारमुखरञ्जन)—अन्यत्खदिरसारस्य चूर्णं कोष्टाम्लसंयुतम् ॥ ६७६ ॥
जातीफलस्य चूर्णेन मिश्रितं मुखरञ्जनम् ।
जम्बीरबीजपूरस्य कलिकाभिः समन्वितम् ॥ ६७७ ॥
कर्पूरपूर्वं खादेच्च तदनु क्रमुकान्वितम् ।"

The *catechu-pill* for king's *tambūla* contained *musk* (*Kasturī*), *Sandal* (*Śrīkhaṇḍa*), camphor (*Karpūra*), while the *catechu-powder*, used with *tambūla* contained powder of *nutmeg* (*jātīphala*), camphor (*Karpūra*) etc.

(16) In the light of the history of *Catechu* in tambula recorded above the following notes from the article on *Catechu* in the *Hobson-Jobson* (London, 1903, pp. 173-174) would be found interesting :—

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5. In the *Bodhāyanīyagṛhyaśeṣasūtra* (Mysore, 1920, P. 371—*Praśna V*, Chap. 7—*Vanaspati-homa*' worship of [illegible] (betel-nut tree) is prescribed ("[illegible]") This text possibly belongs to 3rd or 4th Century A.D. (See p. XXIV of P. Harting's Edition of Selections from this text).

CATECHU also CUTCH and *CAUT* — An astringent extract from the wood of several species of Acacia (*Acacia Catechu* (the *Khair*, and *Acacia Suma* Kurz. A C. *Sundra* D.C. and probably more. The extract is called in H. *Kath* (*Skt. kvath* 'to decoct') but the two first commercial names which we have given are doubtless taken from the southern form, of the word e.g. *Can. Kachu*, Tam. *Kasu*, Malay. *Kachu*. De orta, whose judgments are always worthy of respect, considered it to be the *lycium* of the ancients andalways applied that name to it ; but Dr. Royle has shown that *lycium* was an extract from certain species of *berberis*, known in the bazars as *rasot*. *Cutch* is first mentioned by Barbosa among the drugs imported into Malacca. But it remained unknown in Europe till brought from Japan about the middle of the 17th Century.

Usages : A.D. 1516 —"drugs from Cambay . *Cacho*" —*Barbosa*, 191.

A.D. 1554 —"... Cate ... (at Ormauz) they call *Cacho*" —*A. Nunes*, 22.

A D. 15c3 — "... the wood vulgarly called *Cate*" — *Garcia f*. 125.

A.D. 1578 —"The Indians use this *Cate* mixt with Areca and with Betel and by itself without other mixture"— *Acosta Tract* , 150.

A.D. 1585 —"Sassetti mentions *Catu* as derived from the *Khadira* tree *i.e.* in modern Hindi *Khair* (Skt. Khadira).

A.D. 1616 —"*Catcha*"
—*Foster, Letters*, 127.

A.D. 1617—"*Cacha*" (drug)
—*Cook's Diary*, i. 294.

A.D. 1759 —"*Hortal* and *Cotch*. Earth-oil and wood oil.
—*List of Burma Products etc., Oriental Report* i, 109.

C.A.D. 1760 —"To these three articles (betel, areca and chunam) is often added for luxury what they call *Cachoonda*, a Japan-earth which from perfumes and other mixtures, chiefly manufactured at Goa, receives such improvement as to be sold to advantage when reimported to Japan...Another addition too they use of what they call *Catchoo*, being a blackish granulated perfumed composition."
—*Grose*, i. 238.

A.D. 1813 —The peasants manufacture *Catechu* or *terra Japonica* from the *Keiri* (*Khair*) tree (*Mimosa Catechu*) which

grows wild on the hills of *Konkana* but in no other part of the Indian Peninsula" (erroneous)
—*Forbes Or. Mem.* i. 303 (2nd Ed. i. 193).

(17) The *Khadira plant* has a great antiquity and sanctity. In the *Ṛgveda* (Book III. Hymn 53) Indra is invoked as follows :—

19. "Enclose thee in the heart of Khayar (*Khadira*) timber, in the car wrought of *Śimśapā* put firmness" (Griffith's Trans. Vol. I, 1896, p. 375).

Griffith's Note :—"*Khayar-timber*" : the hard wood of *Khadira*, or *Acacia Catechu* of which the pin of the axle was made. *Śiṁśapā* : *Dalbergia Sisu*, also a common timber tree.

It would require a special monograph to trace the history of the *Khadira* tree from the time of the *Ṛgveda* upto the present day. This tree had great sanctity in ancient Indian sacrificial ritual as the sacrificial post was made of *Khadira* (*Khādira-yūpa*). Kautilya in his *Arthaśāstra* (Chap. XVII of Book II on Superintendent of Forest Produce, p 107 of Eng. trans. by Shamashastry) mentions among forest products (1) *Khadira* (*Mimosa Catechu*) and (2) *Somavalka* which is white *Khadira* (see p. 625 of *Aṣṭāṅgahṛdayakośa* by K. M. Vaidya, 1936 — article on *Somavalka* mentioned in the *Sūtrasthāna* of the *Aṣṭāṅgahṛdaya*). The history of the economic products of India on the strength of Indian sources has not yet been studied systematically. Such history will have a respectable place in any comprehensive history of Indian Culture when it comes to be written. For this purpose each of these products must be studied separately from the historical and cultural point of view.

(18) *Berthold Laufer* in his *Sino-Iranica* (Chicago, 1919, p. 481) refers incidentally to *Catechu* as follows :—

"It is not intelligible to me why Hirth says that in the Ming dynasty (A.D. 1368-1644)[6] *lu-wei* "was, as it is now, *Catechu* a product of the *Acacia Catechu* (Sanskrit *Khadira*)." No authority for this theory is cited ; but this is quite impossible as *Catechu* or *Cutch* was well known to the Chinese under the names *er-Ca* or *hai'r-Ca*" See *Stuart, Chinese Materia Medica*, p. 2 ; and Laufer, *Loan Words in Tibetan*, (No. 107, where the history of these words is traced).

6. See list of Chinese dynasties with dates at the end of *Indian Literature in China and the Far East* by P. K. Mukerji, Calcutta, 1931 (p. 4 of the list).

(19) In Section 13 of Chap. 11 of the *Cikitsasthana* of the *Susrutasamhita* (N. S. Press, Bombay, 1938, p. 450) the author describes the method of gathering the juice of *Khadira* (*Acacia Catechu*) directly from the tree as follows :—

"अतः खदिरविधानमुपदेक्ष्यामः—प्रशस्तदेशजातम् अनुपहतं मध्यमवयसं खदिरं परितः खानयित्वा तस्य मध्यमं मूलं छित्त्वा अयोमयं कुम्भं तस्मिन् अन्तरे निदध्याद् यथा रसग्रहणसमर्थो भवति, ततः तं गोमयमृदा अवलिप्तं अवकीर्य इन्धनैः गोमयमिश्रैः आदीपयेद् यथा अस्य दह्यमानस्य रसः स्रवति अधस्तात्, तद् यदा जानीयात् पूर्णं भाजनम् इति, अथ एनं उद्धृत्य परिस्राव्य रसं अन्यस्मिन्पात्रे निधाय अनुगुप्तं निदध्यात् etc."

The *Khadira-vidhana* or the method of gathering juice of *Catechu* prescribed above was as follows :— A *Khadira* tree growing on good ground and of middle age was selected and ground about its bottom was dug out. A cut was then made in its central root and a pitcher of iron or bronze (*uyas*) was so placed underneath as to admit the exuding juice. The pitcher was then besmeared with a mixture of cow-dung and earth and later kept in the midst of fire produced from (dried) cow-dung and other fuel. When the juice had boiled over, the pitcher was lifted up and the juice poured in a separate pot and kept properly covered.

The above method of gathering the juice from a *Khadira* tree so graphically described by *Susruta* gives us a good glimpse of the processes employed by ancient Indians in the manufacture of herbal medicines.

(20) The *Yogaratnakara* (Ānandāśrama Sanskrit Series, Poona, 1900) is a voluminous medical compendium compiled *between c.A.D.* 1650 and 1725 as I have proved in my article on its date (Pages 154-156 of the *Bharatiya Vidya*, Bombay, 1943, Vol. IV). It contains a long extract of about 20 verses on *tambula* (Verses 58-79 on page 35). The ingredients of *tambula* mentioned in these verses are as follows :—(1) पूग (betel-nut), (2) कर्पूर (camphor). (3) कस्तूरी (musk). (4) लवङ्ग (clove), (5) सुमनस् (nutmeg). (6) ताम्बूलपत्र or पर्ण (betel-leaf). which should be पाण्डुर (whitish yellow). the betel leaf from *Vangadesa* (Bengal) was the best (वङ्गदेशोद्भवं पर्णं परं कट्वरसं मतम्"), (7) *Catechu* (*Khadira*), (8) lime or chunam (*Curna*). The verses pertaining to *Curna* and *Khadira*) are as follows :—

"खदिरः कफपित्तघ्नश्चूर्णं वातबलापनुत् ।
संयोगस्त्रिदोषघ्नं सौमनस्यं करोति च ॥ ७१ ॥
पूगाधिक्यं प्रभाते स्यान्मध्याह्ने खादिराधिकम् ।
चूर्णाधिक्यं निशायां तु ताम्बूलं भक्षयेत्सदा ॥ ७२ ॥"

The properties of *tobacco* (तमाखु) are recorded in 7 verses on pp. 17-18. At present some people chew tobacco powder along with *tambula* or separately. Verse 4 tells us that the use of tobacco is a remedy against diseases of the teeth (दन्तरुक्-शमनं) and that it is a germicide (क्रिमिकण्ड्वादिनाशनं).

The foregoing notes are sufficient to prove conclusively the use of *Curna* (lime) and *Catechu* (*Khadira*) as essential ingredients of *tambula* for about 2000 years say from the first century of the Christian era upto the present day. Further evidence on this topic has been gathered by me and I hope to record it in a subsequent paper.

Appendix

The history of the use of *tambula* in countries outside India must be studied critically with a view to understanding the spread of its use in India many years before c. A. D. 400. In this connection I made inquiries of my friend Mademoiselle S. Karpeles, Secretary of Ecole Francaise d'Extréme-orient at Hanoi (Indo-China) and sent to her my paper on *Indian Nut-Cracker*.[7] She replied promptly in her letter of *16th March* 1949 as follows :—

" Here is the name of the *Nut-Cracker*" :

Laotian —"MITSÁNAK"
Vietnamese —"DAO DĀÙ"
Cambodian —"PRĀNAK"

The habit of *chewing betel is very ancient* and current throughout the whole Peninsula and herewith *a story about its origin found in old Vietnamese books* translated into French. It is Monsieur TRAN HAM TAN; who took the trouble to find it out."

On getting the above story about the origin of *tambula* I got it translated into English by my friend Dr. R. G. Harshe. Registrar, Deccan College Research Institute, Poona. This English translation is given below. I take this opportunity of recording my best thanks to Miss Karpeles, Mr. Tran Ham Tan and Dr. Harshe for their hearty co-operation with me in the present inquiry about the history of *tambula* in *Greater India*.

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7. Prof. R. M. Bhusari has drawn my attention to a genuine Marathi word for the *Nut-Cracker* viz. पोफळफोडणा (*Pophal-phodana*) mentioned in a Mahanubhava Marathi text of the 13th Century viz. लीळाचरित्र (Edited by H. N. Nene—पूर्वार्ध p. 100).

The Life-story of Tan and Lang
(by Mr. Tran Ham Tan, Hanoi)

Formerly there lived a Prince, Quan-lang, who had an imposing stature. He received the title of "Marquis of Cao" as title of nobility. Since then he took *Cao* as the family name. His two sons *Tan* and *Lang* resembled each other so much that one could not distinguish the elder from the younger. At the age of 17 or 18 they became orphans and went together to seek a preceptor for teaching them religion and philosophy. The daughter of their preceptor *Lùn Huyền* was also of 17 or 18 years of age. When she saw the two brothers she fell in love with them. Wishing to marry one of them she did not know as to who was the elder and who the younger of the two. She gave both of them a single cup of meat-soup and only one pair of sticks in order to know the elder and the younger. The junior passed all these things immediately to the senior. She then requested her parents to marry her to the elder one. The couple sometimes lived away from their little brother. The younger brother felt it very much and saying to himself that his elder brother being in love with his wife had forgotten his brother on that account and without informing his elder brother he returned to the paternal house. Coming to a deep stream at which there was no ferry he sat all alone and wept grievously and died ; then his dead-body was transformed into a tree: the *areca*.

When the elder one did not see any longer his younger brother he abandoned his wife in order to go in pursuit of him ; coming to the place where his younger brother had died, he threw himself on the tree (i.e. *areca)* and died : his dead body was transformed into a huge stone, attached to the trunk of this tree. When the young wife marked the disappearance of her husband, she went in his pursuit ; coming to the place she learnt that her husband was already dead, whereupon she threw herself on the stone and embraced it till her death. She was transformed into a *Creeping stock* which braided over the tree and the stone and from which were produced the odoriferous (*sweet-smelling)* leaves. They were the *leaves of the betel.*

Their parents (relatives) came there very much distressed and built a temple in their honour. At the temple, the passers by offered to them the incense sticks, praised their brotherly love and the conjugal duty of the victims.

In the month of autumn the king Hung made a journey to this place. Seeing this temple with the tree surrounded by the creeping stalks he asked for its reason and being supplied with the information made the

fruit and the *leaf* to be brought to him. He chewed them and spat its *juice* on the stone which was of a *red colour* and which emitted a good smell. The king returned taking with him a *fruit of areca* and a leaf of betel prepared with a little *lime he chewed the betel and the areca-nut.* He even ordered that these newly discovered plants be planted in his kingdom and declared that *at marriages and feasts one ought to prepare a present consisting of the betel leaves and the nuts of areca.*[9]

[This took place under the dynasty of the *Hung-Vuong* — (2880-258 B.C.)]

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9. In India also we distribute *Pan-Supari* (betel-leaf and betel-nut) to all guests at marriages, feasts and all social and cordial functions. Do we owe this custom to Indo-China and other countries adjacent to India?

20. The Tāmbūlakalpasaṃgraha of Nṛsiṃhabhaṭṭa and its date — Later than c. A. D. 1350*

My friend Shri J. S. Pade has recently published in the *Journal of the Oriental Institute, Baroda.* the text of a work on *Tāmbūla* called the *Tāmbūlamañjarī*[1], which contains a collection of varied verses about *Tāmbūla* from numerous texts, which reveal the social, religious and cultural history of the habit of chewing *Tāmbūla* (betel-leaf and nut etc.) acquired by the Aryans in India about 2000 years ago. According to Shri Pade the *Tāmbūlamañjarī* is a very late work as it quotes from the *Saubhāgya-Kalpadruma* of Acyutarāya Modak (A. D 1778-1833)[2].

Texts mainly devoted to a study of *Tāmbūla* are very rare. Consequently all lovers of the history of *Tāmbūla* like myself were rejoiced to read the text of the *Tāmbūlamañjarī* as edited by Shri Pade on the basis of a rare MS in the library of the Oriental Institute, Baroda. While reading this text, I was reminded of another text on *Tāmbūla*, a MS of which is available in the library of the Asiatic Society of Bengal, Calcutta. This text is called the *Tāmbūla-Kalpa-Saṃgraha* by Nṛsiṃhabhaṭṭa. The MS of this text is in the Govt. collection of the Asiatic Society (No. 8238). I acquired a copy of this MS for the B O. R. Institute in 1945. The MS begins as follows :—

" श्रीगणेशाय नमः अथ तांबूलकल्पसंग्रहो लिख्यते ।
यन्मुखं वेदविभ्रष्टं तांबूलरसवर्जितं ।
सुभाषितपरिभ्रष्टं तन्मुखं बिलमुच्यते ॥ " etc.

The MS ends as follows :—

" इति श्रीमन्नृसिंहभट्टविरचितस्तांबूलकल्पसंग्रहः समाप्तः । "

No information about the author of the work viz. Nṛsiṃhabhaṭṭa, mentioned in the colophon, is given in the body of the text.

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* Poona Orientalist, Vol. XVIII, Nos. 1-4, pp. 19-21.

1. *M. S. University Oriental Series* No. 3, 1952.

2. See p. 6 of *Madhyayugīna Caritra-Koṣa* by S. Chitrav Shastri, Poona, 1937.

References to earlier authors and works given in this work are as follows :—

(1) मार्कंडेयपुराणे —fol. 1 ("भूयोऽप्याचम्यं कर्तव्यं etc." इति वसिष्ठः)

(2) वसिष्ठः —fol. 1 (दातव्यपत्रसंख्यामाह वसिष्ठः)—पूगीफले-संख्यामाह वसिष्ठः

(3) स्मृतिमंजर्याम् —fol. 2 (पूगपत्रप्रमाणं)

(4) वसिष्ठः —fol. 2 ("अनिधाय मुखे पर्णं etc.")

(5) भरद्वाजः —fol. 4 ("चतुर्वारमभुक्त्वा तु etc.")

(6) वसिष्ठः —fol. 4 ("पर्णमूले भवेद् व्याधिः etc.")

(7) वैद्यः —fol. 5 ("अग्रतः श्रीर्यशोमूले etc.")—verse about the 13 *guṇas* of तांबूलः —"तांबूलं कटुतीक्ष्णं...स्वर्गेपि ते दुर्लभाः"

(8) वैद्य —fol. 5 ("तांबूलपत्राणि निदंति वातं etc.")

(9) आश्वलायनाचार्यः —fol. 6 ("विद्याकामोनिशं रात्रौ etc.")

(10) वैद्यः —fol. 5 ("तांबूलं रक्तपित्तात्य etc.")

(11) वसिष्ठः —fol. 6 ("यती च ब्रह्मचारी च etc.")

(12) आश्वलायनाचार्यः —fol. 7 ("यतेश्च विधवायाश्च etc.")

(13) वैद्यः —fol. 7 ("समास्वादिततांबूलो etc.")

(14) दक्षः —fol. 9 ("भुक्त्वा तु मुखमास्थाय etc.")

(15) अत्रिः —fol. 9 ("इतिहासपुराणानि etc.")

(16) व्यासः —fol. 9 ("इतिहासपुराणाभ्याम् etc.")

(17) विज्ञानेश्वरीये —fol. 9 ("अदःशेषं समाश्नीत etc.")

(18) स्मृतिचंद्रिकायां कात्यायनः —fol. 10 ("सायं प्रातर्वैश्वदेवः etc.")

(19) हेमाद्रौ —fol. 10 ("रात्रौ दानं कर्त्तव्यम् etc.")

(20) देवलः —fol. 10 ("राहुदर्शनं संक्रांति etc.")

(21) वृद्धवसिष्ठः —fol, 10 ("ग्रहणोद्वहसंक्रांति etc.")

(22) संग्रहे —fol. 11 ("हुताग्निं वंदितगुरुः etc.")

(23) वैद्यः —fol. 11 ("प्रातराशोत्वजीर्णेपि etc.")

(24) शातातपः —fol. 12 ("रात्रौ धानादधिः सक्तून् etc.")

The only reference of chronological value in the above list of references is No. 19—*Hemadri*. The quotation is possibly taken from Hemādri's *Caturvarga—Cintāmaṇi*. As Hemādri, who was the minister of the Yādava Kings of Devagiri, flourished between c. A. D. 1260 and 1275, we may fix the date of the *Tāmbūla-Kalpa-Saṁgraha* of Nṛsiṁhabhaṭṭa to a period *later than c. A. D. 1350*. The references to स्मृतिचंद्रिका (No. 18) and the स्मृतिमंजरी (No. 3) are difficult to be indentified as there are many works of these titles recorded by Dr. P. V. Kane in his list of works on *Dharmaśāstra* in Vol. I of his *History of Dharmaśāstra*Poona, (1930). It

is also difficult to identify the references to "वैद्य" in the present work as the particular work on medicine, from which quotations are given under this reference, is not specified. The reference to विज्ञानेश्वरीय (No. 17) is evidently to a work of विज्ञानेश्वर, the author of the *Mitakṣara* commentary on the *Yājñavalkyasmṛti*, who flourished between c. A. D. 1070 and 1100. This reference, however, does not enable us to push forward the earlier limit of c. A. D. 1350 fixed by me for the *Tambūla-Kalpa-Samgraha.* The references to the *Smṛtis* of वसिष्ठ, भरद्वाज etc. are not also of any chronological value. As no quotations from very late works are given by Nṛsiṁhabhaṭṭa I am inclined to believe that the *Tambūla-Kalpa-Samgraha* is earlier than the *Tambūlamañjarī* (later than A. D. 1819) edited by Shri J. S. Pade.

21. Indian Nut-Cracker*
—A. D. 1300-1800

Some time ago I had occasion to see many old *nut-crackers*,[1] presumably of the Peshwa period, displayed at an exhibition arranged by the Bhārata Itihāsa Samshodhaka Mandala, Poona. These nut-crackers roused my curiosity as I have been collecting references from varied sources, bearing on the history of *Tāmbūla*, for the last few years. In India we use the term "*nut-cracker*" for the instrument used for breaking betel-nuts. Though we can establish the antiquity of the betel-nut for about 2000 years on the strength of Sanskrit sources we have no evidence to prove the antiquity of the nut-cracker for such a long period. In fact I have not come across any reference to nut-cracker in the Sanskrit references or even in non-Sanskrit references gathered by me. It is, therefore, necessary to collect and record references to the nut-cracker in literary sources with a view to establishing its history on the basis of datable evidence.

In the *Shorter Oxford English Dictionary* (p. 1346) we find the word "nut-crack" (*A. D. 1570*) and the word "nut-cracker" (*A.D. 1548*) explained as "An instrument for breaking the shells of *nuts*." The "nuts" referred to here do not mean the betel-nuts as the habit of chewing betel-nuts was current only in India and some adjacent countries at this time, but not in England.

At present the term for the "Nut Cracker" used for cutting betel nuts is "*Adkitta*" (अडकित्ता). In the Marathi dictionary *Śabdakosa* (by Date and Karve) p. 34, the word अडकित्ता is recorded and explained as the instrument for cutting slices of betel-nuts but no usages of the word have been recorded. This dictionary derives the word from the Canarese word अडकोत्तु (अडके – betel-nut and कोत्तु – cutting or choppingoff). It is, there-

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* B. I. S. Mandal Quarterly, 1948, pp. 8-14

1. These *Nut-Crackers* belonged to Mr. Kelkar of Poona, who has made a nice collection of antiquarian objects. One type of these nut-crackers displayed at the exhibition was termed *Mithuna* as one arm of the nut-cracker had the shape of a man, while the other arm had the shape of a woman. When these two arms were brought together, they represented the pair embracing each other. [This *romantic Nut-Cracker* must have been once very common in the Deccan]. The *Tāmbūla* has been a gay associate of the Aryans in India for about 2000 years and this romantic nut-cracker, obviously a drawing-room companion, appears to me to be the crowning glory of this gay association.

fore, possible to get some references to अडकोत्त or nut-cracker in Canarese sources and I request Canarese scholars to record these references with their chronology. I shall here record some references which I recently came across :— Mention of अडकित्ता

c. A. D. 1676 } by Raghunātha Paṇḍita in his *Rājavyavahārakośa* composed by the order of Shivaji the great, in the following extract :—

भोज्यवर्ग (p. 152 of शिवचरित्रप्रदीप, B. I. S. Mandala, Poona, 1925).

पट्टी स्यादल्पतांबूलः सैव वर्ग इतीर्यते ॥ ६५ ॥
तंबूलदान पर्यायः करङ्कः परिकीर्तितः ।
चुनाक्षः स्याच्चूर्णपात्रं पूगस्फोटी तथाऽडकित्ता ॥ ६६ ॥
चूना[1] नाम भवेच्चूर्णं दस्ता स्यात्पर्णवेष्टनम् ।

In the पण्यवर्ग (p. 174) we get a reference to the *seller of betel-nuts* as follows :—

"ताम्बूलिकस्तु तांबोळी"

It is clear from the above reference to अडकित्ता (explained by the newly coined Sanskrit word पूगस्फोटी) that the term अडकित्ता for nut-cracker was current in the Marathi language in the 17th century.

Capt. Edward Moor[2] in his *Narrative* (London, 1894) records an elaborate note (pp. 373-378) on the Indian habit of eating betel. In this note he twice refers to अडिकत्ता (without mentioning this Canarese term as follows :—

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1. Vide *Hobson-Jobson* by Yule and Burnell, London, 1903, p. 215—"*CHUNAM*, s. Prepared lime, also specially used for fine polished plaster. Forms of this word occur both in Dravidian languages and Hindi. In the latter *Chuna* is from Skt. *Chūrṇa* powder; in the former it is some-what uncertain, whether the word is or is not, an old derivative from the Sanskrit. In the first of the following quotations the word used seems taken from the *Malayal* "*Chuṇṇāmba*", Tam, *Shuṇṇāmbu*".

Usages :—A. D. 1510 (Cionama) see *Varthema, 144,* 1563 (*Chuna*). c. 1610 (*Chunan*), 1614 (*Chunah*), 1673 (*Chinam*), 1687 (*Chenam*), 1689 (*Chinam*), 1750-1760 (*Chunam*) 1763 (*Chunam*), 1809 (*Chunam*).

2. Moor mentions following items in his note on betel :—

(1) *Atr* (अत्तर), (2) *Areka* tree (in Malabar tongue), (3) Burnt and pulverized betel-nuts, much esteemed as tooth-powder, (4) *Paandan* (पानदान) made of gold, (5) Tavernier's mention of a *Pandan* worth Rs. 40,000. (6) Vessel full of *gul-aal*, rosewater for sprinkling over guests (*Atr* of roses गुलाबी अत्तर presented to guests), (7) *Beeree*, (बिडा), (8) Spoon for taking *atr* out of a pot, (9) Chinese custom of using *opium* and *betel-nut*, (10) a city in India with 30,000 shops of betel-sellers, (11), Account of Abbé Raynal about *Betel* (*History of East and West Indies*, Vol. I, p. 166).

Page 372 —"The *beeree* (विड़ी or विडा) is composed of the *Soopaaree* commonly called betel,[4] *cut by an instrument for the purpose into thin slices*, two or three of which with a cardamom, and a every small quantity of *chuna* is enclosed in a *paan* or leaf, and fastened by a clove in a triangular form."

Page 375 — The utensil (पानदान) thus described is placed on a salver, which also contains the leaf, *the nuts whole, and the instrument slicing* them.

The *Hobson—Jobson* (pp. 913-914) contains the following short article on ताम्बूल :—

> "**TEMBOOL,** Betel-leaf, skt. *tambūla* adopted in Pers. as *tambūla* and in Ar. al *tambūl* [It gives its name to the Tambolis[5] or Tamolis, sellers of betel in N. Indian bazars.]

1298 —"All the people of this city, as well as the rest of India have a custom of perpetually keeping in the mouth a certain leaf called *Tembul*."

Marco Polo. ii, 358.

1498 —And he held in his left hand a very great *cup of gold* as high as a half almude pot...... *into which he spat* a certain herb which the men of this country chew for solace, and which herb they call *atambhor*."

—*Roteiro de V. da Gama*, 59

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4. *Masudi* the Arab geographer (c. A. D. 943) mentions *betel-nuts* in the following extract (Page 277 of *Hobson-Jobson*) :—

"The territories of this Prince (The Maharaja of the Isles) produce all sorts of spices and aromatics......The exports are *camphor, lign-aloes, clove, sandal-wood* Betel-nut, *nutmeg, cardamom, cubeb*.—*Masudi*, i 341 *seq*.

5. The Tāmbolī or ताम्बूलिक is mentioned in the *Kāmasūtra* of Vātsyāyana :—

" रजक–नापित–मालाकार–गांधिक–शौरिक–भिक्षुक–गोपालक–ताम्बूलिक–सौवर्णिक–पीठमर्द–विट–विदूषकादयः मित्राणि ।"

(See p. 72 of Kāmasūtra, ed. by Kedarnatha, N. S. Press, 1900, *Adhikaraṇa* 1, Chap. 5)

"Friendship may be formed with washermen, barbers, florists, perfumers, publicans, mendicants, cowherds, *betel and chewing material sellers*, gold-smiths, *pīthamardas*, *bitas* and professional jesters or *Vidūṣakas*. (Vide p. 46 of Eng. trans. of the *Kāmasūtra* by Basu and Ghosh, Calcutta, 1945).

There are numerous references to ताम्बूल in the *Kāmasūtra*. They show that the habit of chewing ताम्बूल was an established feature of the culture of the period. The date of the *Kāmasūtra* is *c. A.D. 100* (according to Bhandarkar) and *c. A. D. 500* (according to Keith). The poet Bāṇa (A. D. 300) had a ताम्बूलदायक among his early companions.

1563 —"Only you should know that Avicenna calls the betre (*betel*) **tembul**, which seems a word somewhat corrupted, since every body pronounces it as *tambul*, and not *tembul*."

—*Garcia*. f 37h.

In the above quotations about *tambūla* we do not find any reference to the *adkitta* or *nut-cracker*.

As regards the habit of chewing *Tambūla* adopted by foreigners who settled in India I may quote here the following remarks of Dr. A. B. M. Habibullah in his *Foundation of Muslim Rule in India* (A. D. 1200-1290), Lahore, 1945 :—

Page 289 —" But to escape the environmental influence was equally difficult ; the *Indian Turk* was not even circumstantially equipped to attempt it .... *Chewing the betel leaf*, a peculiarly Indian habit found its way early among the nobles and *Barani* notes the excessive addiction to it of Balban's *ariz*. Under the Tughluqs Ibn Battuta noticed another Indian Custom[6] of offering the *bira* of *pan* to the bride as *a part of the marriage ceremony*."

Curiouslyenough the Europeans settling in India have not adopted the habit of eating *Tambūla* owing to their insular attitude. On the contrary every European who travelled in India and has left a record of his travel,has wondered at this peculiar habit and has made a note of it with sometimes elaborate descriptions. I shall deal with all these descriptions in some subsequent paper.

In concluding this short paper on the *Nut-Cracker* I have to request brother-scholars to publish references to it in Indian or Foreign sources before or after A.D. 1600.

P.S.—Since the above paper was drafted I have received the following information about the *Nut-Cracker* from my scholar-friends. I have great pleasure in recording it below most gratefully :—

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6 Habibullah notesfurther the following points with regard to the Indian influence on the Turks : (1) Adoption by even high-born Muslims of Turkish descent of Indian names such as *Chajju*, *Kachchan*, *Hamidraja* etc., (2) Use of Indian terms (in daily conversation) e.g. *Barani* uses the term *barsh Kal* (वर्षकाल) the rainy season ; (3) *Dowries* paid to Muslim girls by FirozTughluq : this was purely a Hindu inspired custom as "Muslim law knows of no money payable by the bride" ; (4) Employment of professional *courtisans* for musical and dancing performances. This was inspired by the Indian practice ; for in Central Asia and in Arabian countries, free-born professional musician of the female sex was a rare social phenomenon.

(1) Diwan Bahadur K. M. Jhaveri, M.A. LL.B., J. P., Bombay, writes on 5-12-1946 :—

"*Nut-Crackers* (ordinary i.e. small ones) we call सूडी in Gujarat. The big ones, which professional Pānvalās use, we call सूडो."

(2) Principal K. K. Handiqui, M.A. of the Jorhat College, Jorhat (Assam) writes on 24-12-1946 :—

'There is no Assamese word for nut-cracker." It is called in Bengali *Yānti* (यांति). This is the information given by one of our Professors of Sanskrit, who is a Bengali. We call a *mill stone* यात in Assamese, pronouncing it as *jāt*. It is called याता in Bengal. All these words come from Sanskrit यन्त्र.

There is a word for "nut-cracker" prevalent in Assam. It is *Carota* but must be a corruption or variation of some non-Assamese word. The fact is that *nut-crackers are not in use among the Assamese*. We use the green and ripe varieties[7] of betel, slicing them with knives. The nut-cracker is required only for dried betel ((*Supāri*), which is not in favour in Assamese homes."

(3) Mr. M.P. Wali, M.A. of Belgaum writes on 23-11-1946 :—

"As regards the word अडकित्ता I may say that it is a pure Kannaḍa word and has crept in Marathi language in a corrupt form. The word is formed of two words *Aḍaki* (=areca nut) and *Ottu* (=lit. to press or crack). The correct pronunciation is *Aḍakottu*. I can very safely say that the Marathi language has no word for it. It is taken from Kannaḍa and is being used in a corrupt form as अडकित्ता. Another synonym in Kannaḍa for this word is *Aḍake gatti* which is also formed of two words, *Aḍake*[8] (=areca nut) and *Katti* (a knife).

The earliest reference to the words अडकोत्तु and अडकेगत्ति occurs in the middle Halagannada work, *Basavapurāṇa* of Bhīma-Kavi, composed in 1369 A.D."

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7. In some parts of the Konkan, where betel-nut gardens are grown people use green and ripe betel, which is available easily. These nut-crackers are made of steel sometimes by local black-smiths. In the Poona market we find brass nut-crackers with steel-blades as also those of steel.

8. The word "*aḍakeya*" (of areca nuts) is found in old Kannaḍa inscription of *A. D. 750-70*(*Epi. Ind. IX, 22*) at Udiyavara in South Kanara Dist. Madras Province. (Vide p. 116 of *Historical Grammar of Old Kannaḍa* by C. S. Gai, Poona, 1946 (Deccan College Series)

In view of the above evidence the history of the nut-cracker is definitely established for about 600 years (A.D. 1350-1947). I have, therefore, to thank Mr. Wali especially for the above reference, which takes back the history of the nut-cracker from the 17th century to the 14th century. I await still earlier references to the nut-cracker from any sources whatsoever, Sanskrit or non-Sanskrit.

(4) Prof. B. D. Verma of the Fergusson College, who hails from the U. P. informs me that the name for *nut-cracker* current there is "*Sarauta*" (सरौता). I wonder if "*Sarauta*" of U. P. has any connection with "Carota" of Assam mentioned by Prin. Handiqui.

22. Some Words for the Nut-Cracker*

I have been studying the history of the use of *tāmbūla* (betel-nut, betel-leaves, Catechu and Chunam etc.) in India and have published a few papers on this history. The references to *tāmbūla* in Sanskrit works are found in plenty but unfortunately there is no mention in these references of the instrument used for cutting or breaking the betel-nut before it was used for chewing purposes with or without the other ingredients.[1] We, therefore, fail to understand the exact nature of the instrument used by our ancestors and the word or words for this instrument, Sanskrit or non-Sanskrit, current in India since the use of *tāmbūla* was introduced into India about 2000 years ago as proved by the literary sources studied by me.

In my paper on the *Indian Nut-Cracker*[2] I have recorded the following words for the *Nut-Cracker* from datable and non-datable literary sources:—

(1) *aḍkittā*—This is a word for Nut-Cracker in Marathi at present. It is recorded accordingly in the *Śabdakośa* by Y. R. Date and C. G. Karve, who state that it is derived from the Canarese word "*aḍkottu*".

(2) *aḍikitā* or *aḍkittā*=*pūga-sphoṭī* or nut-breaker according to the *Rājavyavahārakośa* of Raghunātha Paṇḍita (c. A. D. 1676). Evidently this glossary or lexicon of Non-Marathi words current in the Marathi language in the 17th century treats the word *aḍkitā* as a non-Marathi word and explains it by a happy coinage as "*pūga-sphoṭī*" (nut-breaker). I have not come across the word "*pūga-sphoṭī*" in any Sanskrit work, ancient or modern, in the sense of nut-cracker or otherwise.

(3) *pophal-phoḍṇā*=nut-breaker. This purely Marathi word was current in the Marathi language in the 13th Century A. D. It is found in the *Līlācaritra* (c. A. D. 1250) *Uttarārdha*, a *Mahānubhāva* Marathi work, edited by Nene and Bhavalkar. My attention was drawn to it by Prof. Bhusari of the Osmania University, Hyderabad (Deccan). I wonder how

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**Vāk*, No. 1 (Dec. 1951), pp. 38-41.

1. These papers deal with the History of *tāmbūla* outside India (*Jour. of Travancore University MSS Library*, Jan.-April 1950, pp. 1-14), History of Lime and Catechu in *tāmbūla* (*Sardhaśatābdi Volume*, Asiatic Society, Bombay, 1958). Beliefs associated with the number of ingredients in *tāmbūla* (*Journal of the Gauhati University*). History of *tāmbūla* with thirteen qualities (*Annals*, B. O. R. Institute).

2. *B. I. S. Mandal Quarterly*, Poona, 1948, pp. 8-14.

this purely Marathi word, which corresponds to "*pūga-sphoṭī*" in meaning, disappeared from Marathi and its place was taken up by the Canarese word "*aḍkitā*" or "*aḍkittā*", which has been current in Marathi for more than 350 years.

(4) The word *aḍkittā* is a pure Kannaḍa word, which has crept in the Marathi language in a corrupt form. The word is formed of two words (1) *aḍaki* (= areca nut) and (2) *ottu* (= to press or crack). The correct pronunciation of the word is *aḍakottu*. Another synonym in Kannaḍa language for this word is *aḍake-gatti*. This word also is formed of two words, (1) *aḍake* (= areca-nut) and (2) *Katti* (= a knife). The earliest references to *aḍkottu* and *aḍakegatti* occur in the middle Halagannaḍa work, called the *Basavapurāṇa* of Bhīma Kavi, composed in A. D. 1369.

(5) Small nut-crackers are called "*Sūḍī*" in Gujarat. Big ones used by professional *pānvālās* (sellers of betel-nut and betel-leaf) are called "*Sūḍo*."

(6) There is no Assamese word for nut-cracker. The Bengali word for nut-cracker is *yānti* (যাঁতি). A mill-stone is called *yāt* in Assamese. *Yāt* is pronounced as *jāt*. It is called *yātā* in Bengali. All these words are supposed to have been derived from Sanskrit "*yantra*." The word "*Carota*" for nut-cracker is prevalent in Assam. It may be a corruption or variation of some non-Assamese word. Nut-crackers are not in general use among the Assamese, who use green and ripe varieties of the betel-nut, slicing them with knives. The nut-cracker is required only for dried betel (*Supāri*) which is not in favour in Assamese homes.

(7) It may be worthwhile studying the words for the nut-cracker current in Indo-China where the habit of chewing betel is very ancient and current to-day. Miss S. Karpeles of Hanoi in her letter to me dated 16th March 1949 reported to me the following words for the nut-cracker :—

(1) *Laotian*—"MIT SĀNAK"
(2) *Vietnamese*—"DAO DĀU"
(3) *Cambodian*—"PRĀNAK"

The antiquity of these words needs to be studied from the literary sources concerned.

(8) Apte in his English-Sanskrit Dictionary gives *Saṁdaśaka* as the equivalent of a nut-cracker but in his Sanskrit-English Dictionary he equates *Saṁdaśa* or *Saṁdaśaka* with a pair of tongs. I have found no usage of *Saṁdaśaka* or *Saṁdaśa* in the sense of nut-cracker. On the contrary the following reference to *Saṁdaśa* in the sense of a pair of tongs used for extracting foreign particles from a body is perfectly clear :—

" तत्त्वविज्ञानसंदंशमादाय हृदयोदरात् ।
नानाविधपरामर्शशल्योद्धारः कृतो मया ॥१॥ "

(Vide p. 46 of *Aṣṭavakragita* ed. by H. R. Bhagawat, Poona, 1913.—Chap. 19, verse 1).

(9) Bhaṭṭoji Dīkṣita (*c.* A. D. 1550-1620) in his comment on Pāṇini's Sūtra 692 ("तृतीया तत्कृतार्थेन गुणवचनेन ।२।१।३०") mentions[3] "शङ्कुलाखण्ड" and explains it as " शङ्कुलया खण्डः शङ्कुलाखण्डः " My friend Dr. V. S. Agrawala informs me that the Sanskrit word for the *nut-cracker* seems to be शङ्कुला and the earliest reference to it is in Patañjali's *Mahābhāṣya* (Kielhorn's Edition, Vol. I, pp. 360, 385 ("शङ्कुलया खण्डः शङ्कुलाखण्डः"). He further informs me that Oriental Pandits always tell their pupils to take "शङ्कुला" in the *Mahābhāṣya* in the sense of "*nut-cracker*."

The antiquity of betel-chewing in India is about 2000 years old but it is doubtful if betel-chewing was current at the time of Patañjali (c. B. C. 150). We must, therefore, see if there is any evidence to support the Oriental Pandits in their equation "शङ्कुला=nut-cracker." Recently I have sent for publication a paper[4] on *Vidyāvilāsa* commentary by Śivarāma Tripāṭhin on the *Siddhānta-kaumudī*. In the MS of this Commentary available in the Sanskrit Pathashala, Rajapur (Shevade Collection) folio 16a, Śivarāma (c. A. D. 1700-1750) explains "शङ्कुला" as follows :—

"शंकुला क्रमुकादिभेदनसाधनं" (*Śaṅkulā* is an instrument for breaking betel-nut etc.") This statement definitely proves that at least 250 years ago the word "शङ्कुला" was understood by Pandits in the sense of *betel-nut cracker*. The present Pandits are evidently following this tradition in equating "शङ्कुला" with "nut-cracker" as reported by Dr. Agrawala.

(10) In the absence of any pictorial representations of "*Śaṅkulā*" we are unable to determine the exact form of this instrument for cutting or breaking used in the time of Patañjali (*c.* B. C. 150). As a result of my discussion in this matter with my friends at Nagpur I have received the following reply from my linguist friend Dr. Siddheshwar Varma dated 30th November 1950 :—

"Reference—Patañjali on *Śaṅkulā*. We have compared both the passages concerned. The internal evidence from both these passages does

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3. See p. 168 of *Siddhānta Kaumudī*, N. S. Press, Bombay, 1915. Evidently Bhaṭṭoji's comment on "शङ्कुला" is taken from the *Mahābhāṣya* of Patañjali (c. B. C. 150). The Index to *Mahābhāṣya* (B. O. R. Institute edition) p. 1012, records the words "शङ्कुला" and "शङ्कुलाखण्ड".

4. This paper will appear in the *Adyar Library Bulletin*.

make it clear that *Śaṅkulā* is definitely a cutting instrument, but not an all-purpose one, for its inferiority to *Musala* in certain cases is pointed out. So, being sure that *Śaṅkulā*, as a cutting instrument, is not *Musala*, the question may arise whether it could be rendered as "*Scissors*." But as "*Kartarī*" is a specific term for "*Scisssors*" widely used by authorities like Caraka, Suśruta, etc., scissors could not be denoted by "*Śaṅkulā*," and being thus definitely a separate tool, *Śaṅkulā* seems to mean a *nut-cracker* here. The above conclusion, as kindly communicated to me by Shri K. N. Daveji is further corroborated by his reference to *Śabda Kalpadruma*, which renders *Śaṅkulā* as *utpala-patrikā*, while Monier Williams also renders both these words as "a broad-bladed knife or lancet." Now a nut-cracker has a broad blade, jointed with a bent bar, with a pin (*Śaṅku*) at one end. This cutting blade can well be described as a *Śaṅkulā*, and in this sense a nut-cracker can certainly be called a *Śaṅkulā*—a pair of nippers. In this connection Hindi *Sarautā* (nut-cracker), which may be derived from *Sārapatraka*, may be noted. The Sanskrit etymology of the latter has been correctly given by *Gaṇaratnamahodadhi* sub voce (p. 228). Monier Williams has rendered it erroneously as an adjective only.

There are several other interesting items in connection with this item, but I hope the above lines have made it sufficiently clear that *the passages do imply nut-cracker as* the sense of *Śaṅkulā*. Dr. Raghu Vir says that *Śaṅkulā* should not be called nut-cracker but *nut-cutter* for "nut-cracker nowhere exists in India."

While thanking Dr. Varma and other friends who have helped me in this inquiry I have to request them as also those who are interested in this problem to record the usages of the word "*Śaṅkulā*" with a view to clarifying its meaning more decisively than what has been done in this paper.

23. History of the Spittoon in India*

While studying the history of *Tāmbūla* in India I thought it necessary to trace the history of the different accessories generally used at present by habitual chewers of betel in India. Accordingly I published a paper on the *Indian Nut-cracker*[1], the history of which was traced by me up to about A.D. 1300. Another accessory of *Tāmbūla* is the *Spittoon* or *Pikdānī* which is used by habitual chewers of *Tāmbūla* owing to the necessity of maintaining cleanliness in the home, which in the absence of a spittoon would be converted into a veritable spittoon owing to the excessive salivation in the mouth caused by the ingredients of *Tāmbūla* such as the betel-leaf, cloves, nutmeg, chunam, catechu etc. The advocates of social hygiene in India have always deplored the pernicious habit of spitting on the street-pavements resorted to by the chewers of *Tāmbūla*. A glance at the grounds in front of the shops of *Tāmbūla* sellers will bear out the truth of this criticism as there is no shop of this kind in front of which you will not find the grounds disfigured by the red spittings of the chewers of *Tāmbūla*. It was perhaps on this account that the chewing of *Tāmbūla* in a public street was considered as a *durācāra* (bad habit) in all provinces of India[2] as recorded by a writer of the seventeenth century. The use of the spittoon in domestic life certainly shows a high sense of hygiene and the history of this use has a distinct place in the history of sanitation in India. We must, therefore, investigate and find out whether the use of the spittoon was introduced into Indian life and culture simultaneously with the introduction of *Tāmbūla*[3] or somewhat earlier than such introduction.

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* *Annals* (B.O.R. Institute), Vol. XXXVI, pp. 204-214.

1. Vide pp. 8-14 of *Bhārata Itihāsa Saṁshodhan Maṇḍal Quarterly*, 1948.

2. Varadarāja, a pupil of Bhaṭṭoji Dīkṣita, observes in his *Gīrvāṇapadamañjarī* :— "चर्वं देहे पथि ताम्बूलं दुराचारः" । Vide p. 28 of Vol. VI, No. 2 (Feb. 1945) *Bhāratīya Vidyā*.

3. In connection with my study of the history of *Tāmbūla* I made inquiries with several friends about exhaustive and critical literature on the custom of betel-chewing. Among these friends Dr. A. N. Upadhye of Rajaram College, Kolhapur, was the only friend who drew my attention to the very important article on "*Romance of Betel-chewing*" (Appendix II to C. H. Tawney's translation of *Kathāsaritsāgara*, Vol. VIII, pages 237—319) by N. M. Penzer. I am thankful to Dr. Upadhye for drawing my attention to this elaborate article of 82 pages in which Penzer has collected useful data about the extent of the custom of betel-chewing, its exact nature, the numerous ceremonies in which betel plays a part and the significance of the custom from a linguistic and anthropological point of view.

In studying the history of the *appliances of Betel-chewing* we must take note of such appliances as are now deposited in our museums. Penzer in his article on the "*Romance of Betel-chewing*" devotes some pages to the description of such appliances (pp. 249-254 of Vol. VIII of Tawney's Trans. of *Kathāsaritsāgara*). I note some items from this description :—

Victoria and Albert Museum (London)—Room 8 (metal work)—

Case 5 —Brass "*sireh*"—boxes from Sumatra. Some with *svastika* designs carved on their sides.

Case 13 —Brass comb and areca-nut cutter combined (from Tanjore). The portion forming the cutter represents a *man and a diminutive woman.*

—Pestle and mortar of brass.

Cases 14 and 17 —Singhalese *cutters* and *lime-boxes.*

Cutters of steel (4½ to 11½ inches), inlaid with silver and encrusted with brass.—One cutter of the shape of a *dragon* with the head of a *bird.*

—*Chunam* cases of the size of old English watch-cases with chains.

—*Spatula* with a flat head ½ inch in breadth.

Wall cases 25 and 27 —*Nut cutters* inlaid with coloured glass, with handles of ivory, bone or pearl. Some with the shape of animals like horse, peacock etc.

Descriptions of *appliances* for betel-chewing in modern books :—

(1) *Mediaeval Sinhalese Art* by A. K. Coomaraswamy.

—*Plate XLVI* (illustrations of smaller specimens with descriptions on pp. 336-337).

—*Pages 238-239*—excellent description of a *Betel-bag*

—Plates XXX-XXXIII—illustrations of *betel-bags*, large and small, with hidden pockets, and embroidered in silk, having oval and square sizes.

(2) *Malay Royal Asiatic Society*, Vol. III, 1925, pp. 22, 28.

—*Betel-boxes* of solid gold mentioned in Malayan fairy stories.

According to Przyluski the word *Tambūla* consists of the root-word *būla* and *tam*, which is a prefix. *Būla* corresponds to Austro-Asiatic (i.e. non-Indo-Aryan) *balu* and means "*something that is rolled*"; see for further details Przyluski's paper "*Emprunts Anaryens en Indo-Aryen*" in *Bulletin de la Soc. de Linguistique de Paris*, Vol. XXIV, 3rd Fasc. (No. 75), 1924, pages 255-58.

—Every Malay house has a betel box or *betel tray* fitted with requisites for chewing viz. cardamoms, cloves, catechu, lime and tobacco — a small case to hold betel-leaves, a metal *spatula* for spreading lime on these leaves and curiously shaped *scissors for cutting areca-nuts.*

(3) *Oriental Silver work, Malay and Chinese* by H. Ling Roth, London, 1910, (Figures 3, 4, 5, 30-34,38-47, 50-53, 57-62).
—Many illustrations of *bowls* to hold areca-nuts, *lime-boxes (Bekas Kapor) areca-nut boxes (chimbul)* and *betel-leaf holders (Bekas sirih).*

(4) *Natives of Sarawak and British North Borneo* by H. Ling Roth, Vol. II, p. 39—Description of *betel-basket* worn by the Land-Dyak.

(5) *Handbook to the Ethnographical collections* (in the British Museum).
—Several illustrations of *betel-chewing accessories* like *spatulae* from the Anchorite Islands, off the North Coast of New Guinea, some shaped like the tale of a lizard — examples from (south east) New Guinea Archipelago (p. 121) with designs of human figures and crocodiles.
—Illustrations of betel-chewing apparatus from Ceylon.

In the above account of the appliances for betel-chewing I don't find any references to the *spittoons*[1] with the history of which I am concerned in the present paper.

(1) The Marathi Dictionary *Śabdakośa* (by Y. R. Date and C. G. Karve, Poona, 1936 — Vol. V, p. 2004) records the words *Pikdāṇī, Pikdānī, Pinkdānī, Pikdān, Pikadharaṇī, Pikapātra* etc. for the SPITTOON.

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1. While discussing the history of the spittoon in India with my friend Prof. D.D. Kosambi I came to know from him that the ancient Romans used some bowls inwhich they used to vomit after heavy banquets. In this connection I read *Daily Life in Ancient Rome* by Jérome Carcopino (Trans. E. O. Lorimer, London, 1916) Chapter IX — "Afternoon and evening." While describing the gluttony of the Romans the author observes :—

Pages 271-272— "Martial tells of more than one who simply clicked his fingers for a slave to bring him "a necessary vase" into which he remeasured with accuracy the wine he had drunk from it", while the slave " guides his boozy master's drunken person." Finally it was not infrequent during the *cena* to see priceless marble mosaics of the floordefiled withspitting".

As compared with this disgusting gluttony of the wealthy Rome which drainedthe resources of the Roman Empire and defiled the marble mosaics of the floor the Indian habit of spitting in the streets after chewing betel dwindles into insignificance.

The usages of some of these words recorded in this Dictionary are as follows :—

(1) पिकदान — Spittoon

"पिकदानें ऊर्ध्वमुखें ।
तांबूलपत्रें अविम्रुखें ॥"

—*Harivijaya* 34.158

(2) पिकधरणी — Spittoon (A. D. 1608-1649)

" तांबुलाची पिकधरणी ।
ते मी असे मुख पसरुनी ॥ "

—Tukārāma's *Gatha*, 1746

(3) पिकपात्र — Spittoon (A. D. 1599 — c. 1649)

" मृदुमवाळ शोटिंगणीं ।
पिकपात्रें झलकती ॥ "

—Mukteśvara, *Āadiparva*, 43.17

In the first two usages recorded above the *spittoon* is associated with *Tāmbūla*. Saint Tukārāma and the poet Mukteśvara of Mahārāṣṭra lived in the *first half of the 17th century*.

(2) In the lexicon of non-Sanskrit terms called the *Rājavyavahārakośa* (Poona, 1880) composed by Raghunātha Paṇḍita by the order of Shivaji the Great about *A. D. 1676* we find the words "*pīkadānī*" (पीकदानी) and "*tasta*" (तस्त) mentioned in the following extract :—

Page 3 (*Rājavarga*) verses 26-27 :—

" ... . तस्तं गण्डूषपात्रकम् ॥ २६ ॥
पीकदानी नाम्नी है पतद्ग्रहकलाचिके । "

Here *pīkadānī* is explained by the Sanskrit word *patadgraha* (spittoon) and *tasta* is explained as *gaṇḍuṣapātraka* (a tray for washing the mouth in).

(3) In the lexicon of Persian terms called the *Pārasībhāṣānuśāsana* (edited by Dr. Banarsidas Jain, Lahore, 1945) composed *before Saṁvat 1600* (*A. D. 1544*) we find the word "तस्तरी" (*tastarī*) in the sense of "*hasta-prakṣālaka*" i.e. wash-hand-basin in the following extract :—

Page 9— Chap. I, verse 79 —

" ... ... तस्तरी प्रोक्ता हस्तप्रक्षालकस्तथा ॥ ७९ ॥"

It is clear from the foregoing references that the non-Sanskrit terms, *pīkdānī*, *tasta* (or *tastarī*) were current in India in the 17th century or or even earlier in the sense of *spittoon* and *wash-hand-basin* respectively.

(4) The *Hobson-Jobson* by Yule and Burnell (London, 1903) contains the following article on *Pigdaun* (spittoon) :—

Page 709 — "*PIGDAUN*, S. a Spittoon. Hind-*pīkdān*. *Pik* is properly the expectorated juice of chewed betel.

c. A. D. 1665 — " Servants ··· to carry the *Picquedent* or Spittoon- Bernier, ed. Constable, 214. In 213 *Piquedans*[1].

A. D. 1673 — "The Rooms are spread with carpets as in India, and they have *Pigdans* or spitting pots of the Earth of this place, which is valued next to that of China. to void their spittle in"—*Fryer* 223.

A.D. 1684 —Hedges speaks of purchasing "*Spitting cup*" —*Diary*, Hak. Soc. i, 149.

(5) The lexicon *Amarakośa* (ed. N. S. Press, Bombay, 1905) by Amarasimha (between A. D. 500 and 800) contains two words for the spittoon in the following extracts :—

Page 286 —Kāṇḍa II (*Brahmavarga 7*) verse 139 :—

·········प्रतिग्राहः पतद्ग्रहः"

Bhānuji Dīkṣita (c. A. D. 1630) comments :—

'पततो ग्रहः ॥ द्वे पीकदानी इति ख्यातायाः ॥"

Page 526 —Kāṇḍa III (*Liṅgādisaṁgrahavarga 5, verse 21*),

—"सकटाहः पतद्ग्रहः ॥२१॥"

Bhānuji comments :—

"पततः ताम्बूलादेः ग्रहः ॥ पीकदान इति ख्यातः"

It is clear from Bhānuji's comments that the terms पीकदानी and पीकदान were current at Benares where he lived in the first half of the 17th century and that they meant *Spittoon* used by the chewers of *tambūla* like the Rajas described by Bernier as conveyed in palanquins and spitting chewed betel into *spittoons* held by servants on one side of these palanquins.

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1. The use of Spittoons mentioned by Bernier was confined to the *Omrahs* and *Rajas* especially at Delhi and Agra. Many of them were " conveyed on the shoulders of six men, in rich *Palekys*, leaning against a thick cushion of brocade and chewing their *bet-le* for the double purpose of sweetening their breath and reddening their lips. On one side of every *paleky* is seen a servant bearing the *piquedans* or Spittoon *of porcelain* or *Silver* etc." (*Bernier*, p. 283).

Where were the *porcelain Spittoons* manufactured ? *Ain-i-Akbari* (A. D. 1590) mentions "dishes of ... *China*" used at Akbar's table (pp. 50-51 of Vol. I of *Ain-i-Akbari*, Trans. by F. Gladwin, Calcutta, 1897).

(6) Sarvānanda (A. D. 1159) in commenting upon the words प्रतिग्राह and पतद्ग्रह mentioned by the *Amarakośa* for *spittoon* also connects the use of the spittoon with *tāmbūla* as will be seen from the following extract :— Page 390 of *Nāmaliṅgānuśāsana* of Amara ed. by T. Ganapati Śāstri, Trivandrum, 1914)

—"प्रतिग्राहद्वयं प्रतिग्रह प्रति स्याते । 'विभाषां ग्रहः' (3. 1. 143) इति कर्तरि णः प्रतिग्राहः । दूषितरसं ताम्बूलं पतत् गृह्णाति इति पतद्ग्रहः । पचादिः ॥"

It would be worthwhile finding out whether any other commentators of the *Amarakośa* associate the words[1] *pratigraha* and *patadgraha* for spittoon with *tāmbūla.*

(7) Some friends tell me that the custom of presenting a spittoon (*pikdānī*) as a marriage present along with other useful articles from the father-in-law to the son-in-law is now current in the Deccan and perhaps elsewhere in India. This custom appears to be old as the poet Śrīharṣa (c. A. D. 1175) refers to it in his *Naiṣadhīyacarita* (canto XVI, verses 27-28—p. 228 of Eng. Translation by K. K. Handiqui, Lahore, 1934). On the occasion of Damayanti's marriage with king Nala, her father king Bhīma gave some marriage gifts to his son-in-law. Among these gifts we find a *Spittoon* पतद्ग्रह described by the poet in the following verses 27, 28 of canto XVI of the poem :—

"दिवस्पतेरादरदर्शिनादरादढौकि यस्तं प्रति विश्वकर्मणा ।
तमेकमाणिक्यमयं महोन्नतं पतद्ग्रहं ग्राहितवान्नलेन सः ॥२७॥
नलेन ताम्बूलविलासिनोज्झितैर्मुखस्य यः पूगकणैर्भृतो न वा ।
इति व्यवेचि स्वमयूखमण्डलादुदस्यदुच्चारुणचारुणश्चिरात् ॥ २८ ॥"

Translation :—

"27. King Bhīma gave to Nala a *spittoon* which was *very high* and entirely made of rubies. Viśvakarman had cordially presented it to king Bhīma, perceiving Indra's esteem for him.

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1. My friend Dr M. M. Patkar of the Sanskrit Dictionary Department of the Deccan College Research Institute, Poona, informs me in his letter of 5th May 1950 that the word पतद्ग्रह is recorded in *Naiṣadhacarita* (XVI, 27), *Harṣacarita* (p. 237, line 2 and Eng. Trans. by Cowell & Thomas, 1897, p. 208) and *VaijayantīKoṣa*, (p. 171 line 319), *S'abdaratna Samanvaya* (p. 344) *Medinī Koṣa* (p 193), *Nānārthasaṁgraha* of Ajaya p. 57) *Anekārtha saṁgraha* (p. 123) of Hemacandra *Pariśiṣṭaparvan* of Hemacandra (p. 581 of Monier Williams' Dictionary). Among these references, the reference to *patadgraha* in the *Harṣacarita* was unknown to me, though Prof. Jagan Nath of Jullundar had a vague memory of it as he wrote to me. I am thankful to Dr. Pathar and Prof. Jagan Nath for the troubles taken by them in this matter.

28 On account of its halo of rays, beautiful as the rising high ascending sun, the people long thought: "It is full of the remains of chewed betel, thrown out by Nala, who is fond of betel."

The bright red ruby spittoon, though empty, seemed to be full of the scarlet remains of betel.[1]

Analogous to the custom of presenting a spittoon as a marriage gift we find its use as a general presentation article in the 17th century. In a list of things to be presented to the Faujdar of Hugli, dated *3rd April 1682* we find "one *Hoocka*, one *pigdan* (spittoon)"—(*Factory Records*, Hugli, No. 3 quoted in foot-note 2 on page 96 of Thomas Bowrey's account of *countries round the Bay of Bengal* (*1*6*66-1679*) Hak. Soc., Cambridge, 1905).

(8) At the present stage of my inquiry I may raise the question: *What nations of antiquity used the spittoon?* Though I cannot answer this question owing to my limited knowledge of the history of non-Indian cultures I may here record the use of the spittoon current among the Tartars in the 13th century as vouched by *Marco Polo* (A. D. 1298):—

Page 236 (*Travels*, ed. by W. Wright London, 1901)—chapter XXVI dealing with Religion of Tartars etc.

"Every man of rank carries with him a *small vessel*, into which he spits, so long as he continues in the hall of audience, no one daring to spit on the floor, and this being done he replaces the cover, and makes a salutation."

The Editor (Wright) observes on the above custom:—

(foot note 3)—"This kind of utensil (*spittoon*) is *common in many parts of the East Indies* where it is commonly termed, from the Portuguese, a *cuspidôr*. It might be inferred from hence that the practice then prevailed of masticating something of the nature of betel."

(9) The Chinese traveller Fa hsien in his *Travels in India* (*399-414 A. D.*) describes the country of *Kashgar* (pp. 7-8 of *Travels*, trans. by H. A. Giles, Cambridge, 1923). In this description we find a reference to a *stone spittoon* used by Buddha as follows:—

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1. The use of spicy ingredients in the betel is nicely mentioned in the following verse 110 of Canto XVI:—

"The followers of Nala, after putting the betel in their mouth, throw away the betel-leaf when they saw a scorpion made of spices, put inside the betel-roll by Dama. Struck with terror, they made every one laugh at their mistake."

Page 8—"This country (Kāshgar) has a *spittoon* which belonged to Buddha ; it is made of stone and of the same colour as his alms-bowl."

Evidently this *stone spittoon* was shown to this Chinese traveller as a relic of Buddha's belongings. It is mentioned along with "one of *Buddha's teeth*, for which the people have raised a pagoda."

This reference to Buddha's *spittoon* is in harmony with the reference to a spittoon (*paṭiggaha*) found in the *Mahāvagga* of the *Vinayapiṭaka* noted below.

(10) In the *Mahāvagga* of the *Vinayapiṭakam* (ed. by H. Oldenberg, London, 1879, Vol. I—*Mahāvagga*, p. 271) we get the word "*paṭiggaha*" for the spittoon. In Khandhaka VIII, 1. 11 of this canonical text we get an account of the cure effected by the celebrated physician Jīvaka Komārabhacca. He treated a Setthi's wife at Sāketa, who was suffering from a disease in the head for seven years. He put some medicated ghee in her nose and it came out through the mouth. "And the Setthi's wife spat it out in the *spittoon* (*paṭiggahe*) and told the maid servant "come my girl, take this up with a piece of cotton". Jīvaka got perplexed at this niggardly conduct of the house-wife, who, however, assured the great physician that his fee for the treatment will be duly paid. The Setthi's wife in giving this assurance observed :—

"House-holders like us, doctor, know why to economise thus ; this ghee will do for the servants or workmen to annoint their feet with or it can be poured into the lamp Be not perplexed, doctor, you will not lose your fee." (Page 178 of the English Trans. of *Mahāvagga* —S. B. E. Vol. XVII, Oxford, 1882).

The above reference to *spittoon* as a domestic sanitary appliance is the earliest so far discovered by me and it is more than two thousand years old.

(11) The *Carakasaṁhitā*, one of the earliest medical texts, contains the following reference to the *spittoon* (*pratigraha*) :—

Page 93 (N. S. Press, Bombay, 1941)—*Sūtrasthāna* (chap. 15, para 7) mentions the accessories of the sickroom, among which we find the *spittoon* (*pratigraha*) :—

" उपन्यस्तभृङ्गारप्रतिग्रहाणि...उपकल्पयेत् "

Page 94 (chap. 15, para 11)—" प्रतिग्रहांश्च उपचारयेत् " The commentator Cakrapāṇidatta (c. A. D. 1040) explains *pratigraha* to mean *patadgraha* (" प्रतिगृह्णन्तीति प्रतिग्रहाः पतद्ग्रहाः "). Caraka also mentions "[illegible]" in the same context and describes it as "[illegible]"

which is explained by Cakrapāṇidatta as "अलज्जाविषय", लालाटप्रतिग्रह mentioned by Caraka was perhaps a special tray in which the forehead (ललाट) or face was washed and consequently it was considered decent (अलज्जाविषय) as compared with the spittoon proper. If this explanation is accepted we can easily infer that in Caraka's time different types of trays were in use for cleaning different parts of the body somewhat like the sanitary ware in our modern hospitals.

(12) The earliest reference to the association of the *spittoon* (*patadgraha*) with betel-chewing is that found in the *Kāmasūtra* of Vātsyāyana (page 45 of N. S. Press Edition, Bombay, 1891) — *Sādhāraṇa Adhikaraṇa* I, chapter 4. Describing the life of a citizen Vātsyāyana mentions his bed-room and its accessories as follows :—

" बाह्ये च वासगृहे ··· ··· रात्रिशेषमनुलेपनं माल्यं सिक्थकरण्डकं सौगन्धिकपुटिका मातुलुङ्गत्वचः ताम्बूलानि स्युः भूमौ पतद्ग्रहः ।"

Translation (p. 36 of Eng. Trans. by Dr. B. N. Basu, Calcutta, 1945) :—

"This outer room should contain a bed ... ... On this table the following articles required for the night's enjoyments should be arranged : balms and perfumed unguents, garlands, coloured waxen vessels, pots for holding perfumes, pomgranate rinds and prepared *betels*. There should be a *spittoon* on the floor near the bed ..."

The commentator Yaśodhara definitely connects the use of the *spittoon* (*patadgraha*) mentioned in the *Kāmasūtra* with the chewing of *tāmbūla* by the citizen (*nāgaraka*) as will be seen from the following extract :—

" ताम्बूलानि च सज्जितानि रात्रिपरिभोगार्थं स्युः । भूमौ पतद्ग्रहः । न वेदिकायाम् । प्रक्रान्तत्वाद् व्यवच्छिद्यते । यत्रस्थेन वा नायकेन उपयुक्तताम्बूलादि निष्ठीवितं पतद्गृह्णाति सा भूमिः । तत्र स्यात् । न अन्यत्र । "

It is clear from these remarks that the spittoon was kept in the bed-room on the ground near the bed at a convenient place where it could catch the spittle thrown out at night by the citizen after using the *tāmbūla* at intervals

(13) The poet Bāṇa (c. A. D. 630) in his *Harṣacarita* refers to royal *spittoons* carried by hired porters along with other articlesfor royal use during king Harsa's expedition described in picturesque detail by the poet. The pertinent extract reads as follows :—

Harṣacarita (B. S. series, Bombay, 1909, Page 285).

Ucchvāsa VII —"कृष्णकठिनस्कन्धगुल्लगुल्मैः गृहीतसौवर्णपादपीठोपर्यङ्कपरकलशपतद्ग्राहमाहैः etc. "

Translation by Cowell and Thomas (London, 1909, Page 208) :—

" Here swiftly running in a line......... were the king's hired porters, carrying black hard clubs as heavy as trunks of trees, bearing golden foot-stools, water-pots, cups, *spittoons* and baths etc."

(The commentator Śaṁkara explains the word *"paṭadgraha"* as *"niṣṭhīva-pātra"* (spittoon) and the word *"Karaṅka"* in the extract as *"tāmbūla-ādhāra"* (betel-box). Evidently in this context also the *spittoon* follows the *betel-box*. There are numerous references to betel-chewing in Bāṇa's *Kādambarī* and *Harṣacarita* but the references to the *spittoon* are rare).

(14) There may be references to the *spittoon* in Sanskrit or Prakrit poetic imagery but I have not come across these references except the following reference from Bhartṛhari's *Śṛṅgāraśataka* which I owe to my obliging friend Prof. D. D. Kosambi :—

"कश्चुम्बति कुलपुरुषो वेश्याधरपल्लवं मनोज्ञमपि ।
चारभटचोरचेटकनिष्ठीवनशरावम् ।"

Here *spittoon* is called "निष्ठीवन-शराव" and the mouth of a prostitute is compared to a *spittoon* which is indiscriminately used by all classes of degraded human beings.

From the evidence recorded so far I may tentatively draw the following conclusions :—

(1) The *spittoon* was in existence in India at the time when the Buddhist canonical text *Mahāvagga* was composed about 300-250 B.C. It may have been in use in the time of Gautama Buddha (c. B. C. 563-490) and even earlier.

(2) The use of the *spittoon* in India was first confined to domestic life especially for sick persons but with the introduction of *tāmbūla* into India in the early centuries of the Christian era it came to be used by the well-to-do class of people addicted to *tāmbūla*, which caused excessive salivation in the mouth with the consequent need of frequent spitting.

(3) The use of the spittoon in the sick-room as prescribed by *Caraka* clearly shows that Indian doctors recognised the need of sanitary appliances like the *spittoon* more than 2000 years ago. A detailed study of such appliances on the strength of medical and non-medical literary sources should be undertaken by scholars interested in the history of Indian sanitation. Some of the texts on Hindu Dharmaśāstra contain ample material for a systematic study of the development of sanitation in India.

STUDIES IN THE
HISTORY OF INDIAN PLANTS

24. Studies in the History of Indian Plants — Some Notes on the History of Caṇaka (Cicer Arietinum) — Between 500 B. C and A.D. 1820*

In my paper[1] on the "History of Caṇaka (gram) as food for Horses" I suggested that the practice of feeding the horses with *Caṇaka* (= *C*) is later than its use for human consumption at least in India. Though *C* as *horse-gram*[2] for Indian horses has a history of about 1000 years as proved by me it apeears to have been used in India first by men and not by horses. From Vedic times onwards the *Yava* (= *Y*) was prominent in the regimen of men first and later of horses. In fact Kauṭilya in his *Arathaśātra* has included *Y* in the regimen of horses but there is no reference to *C* in this work either for human or animal consumption, so far as my study goes. Accordingly Hemacandra in his *Abhidhānacintāmaṇi* (c. A. D. 1140) calls *Y* as *Haya-priya* or the favourite of horses. He also mentions *C* but does not call it *haya-priya* or by any such adjective. In the two treatises on horses by Jayadatta and Nakula viz. (1) *Aśvavaidyaka* and *Aśvacikitsita* respectively, which are not much removed from Hemacandra in their chronology, we are told that *Y* is the best food for horses but in case *Y* is not available *C* is the second best food for them. This statement clearly shows the transitional stage of Indian horse-regimen in which we note the regard for *Y* as the great horse-food of antiquity. Though much revered by Jayadatta and Nakula it was falling into background and *C* had come to the fore and was probably produced in plenty to take its honoured place in the regimen of Indian horses, perhaps after the Muslim advent in India say about A.D. 700.

I propose in this paper to put on record some references to *C* as food for men. These references will also show the antiquity of *C* on

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* *Annals* (B. O. R. Institute), Vol. XXVII pp. 56-82.

1. See pp. 89-105 of *Annals* (B. O. R. Institute, 1945, Vol. XXVI).

2. Edward Moor in his *Narrative* etc. London, 1794, makes some interesting remarks on the Mahrattas as horsemen and farriers —(pp. 89-95). He says that the Mahrattas breed a great many horses and procure others from *Arabia*, *Persia*, *Candahar* and the northern parts of Hindustan. Speaking of horse-food he states :—

"*Gram* and *Coolty* are the grain on which horses are fed throughout the Maratha Country" (p. 96).

Indian soil for about 2000 years as vouched by the evidence of Sanskrit and non-Sanskrit sources.

(1) The lexicon *Amarakośa* refers to *C* as follows :—
" चणको हरिमन्थकः ॥१८॥ "—(Kāṇḍa II - वैश्यवर्ग, see p. 354 of N. S. Press Edition, Bombay, 1905).

Bhānuji Dīkṣita comments[1] on the above reference as follows :—

"द्वे 'चणकस्य' " *i.e.* चणक and हरिमन्थक are synonyms. The date of the *Amarakośa* lies between say *A.D. 500 and 800.*

(2) In the *Carakasaṁhitā*, one of the earliest medical texts, we get some references[2] to *C*. In the शमीधान्य वर्ग Caraka gives the properties of *C* as follows :—

" चणकाश्च मसूराश्च खण्डिकाः सहरेणवः ।
लघवः शीतमधुराः सकषाया विरूक्षणाः ॥ २८ ॥ "

(*Sūtrasthāna*, ch. 27, p. 155 of N.S. Press, Edition of *Carakasaṁhitā*, Bombay,1941).

Cakrapāṇidatta (*c.A.D. 1060*) commenting on the above verse does not explain the word चणक. He merely states that *C* is well-known ("चणकः प्रसिद्धः").

(3) The *Suśrutasaṁhitā*, another earliest medical text, refers to both the synonyms of *C* given in the *Amarakośa* viz. चणक and हरिमन्थ in the following extracts:—

(i) In the कुधान्यवर्ग we get *C* mentioned in the following extract :—

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1. Bhānuji Dīkṣita (c. *A. D. 1630*) quotes the derivation of हरिमन्थक given by Rāyamukuṭa (*A. D. 1431*) viz. "हरीन् मन्थं जनयति" but does not accept it. He observes "—इति मुकुटः । तन्न । 'हरिमन्थकः' इति पाठप्रमादात् ।" He gives his own derivation :—"हरिभिर्मथ्यते । मन्थ विलोडने (भ्वा. प. से.) etc." These derivations remain to be verified historically as both Rāyamukuṭa and Bhānuji lived in the *15th* and *17th centuries* respectively when चणक was a recognised food for horses in India. Did Amara know C as food for horses ?

2. In the *Carakasaṁhitā Cikitsāsthāna*, chapter 29, verse 51 contains a reference to चणक as follows :—

P.630—" आढक्यश्चणका मुद्गा मसूराः समकुष्ठकाः ।
यूषार्थं बहुसर्पिष्काः प्रशस्ता वातशोणिते ॥ ५१ ॥ "

Cakrapāṇidatta does not comment on the word चणक in this verse.

"मुद्ग–वनमुद्ग–कलाय–मकुष्ट–मसूर–मङ्गल्य–चणक–सतीन–त्रिपुटक–हरेणु–आढकी–प्रभृतयः वैदलाः ॥ २७ ॥"[1]

(Vide *Sutrasthana*, Ch. 46 of *Suśrutasaṁhita*, N. S. P. 1938, p. 216).

Ḍallaṇa (c. A. D. 1100) commenting on the word चणक in the above extract says 'चणकः प्रसिद्धः' just like Cakrapanidatta of c. 1060 A. D. It is, however, clear that *C* was a grain of established reputation in the 11th century as also in the 12th century.

(ii) In the शाकवर्ग the Suśrutasaṁhitā refers to चणक as a शाक or vegetable and records its properties as follows :—

" स्वादुपाकरसं शाकं दुर्जरं हरिमन्थजम् ॥"

(*Sutrasthana*, Ch 46, verse 277, p. 234).

Ḍallaṇa explains:—" हरिमन्थः चणकः" (compare Amarakośa's statement—"चणको हरिमन्थकः").

It is clear from the above references that both the words for *C* given by *Amarakośa* viz. चणक and हरिमन्थ or हरिमन्थक were known as early as the time of the *Suśrutasaṁhita* as we have them today. Whether the word हरिमन्थ has any allusion to horses (हरिभिः मथ्यते) as observed by Bhānuji c. A. D. 1630 will have to be investigated.

(4) In the *Manasollasa*[2] of the Cālukya king Someśvara (c. A. D 1130) there are various references to *C* such as (1) the use of *C* flour--balls as a bait to fish in angling, (2) the use of *C* as food for buffaloes used for buffalo-fights, (3) use of *C* grains for tempting the boars before hunting them in forest-ground and (4) the use of *C* in cooking. I have already recorded the first three uses in my paper on "*Canaka* as food for horses etc." already referred to in this paper.

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1. On p. 217 of the सुश्रुतसंहिता (1938) the properties of चणक are given in the following lines :—

" वातलाः शीतमधुराः सकषाया विरूक्षणाः ।
कफशोणितपित्तघ्नाश्चणकाः पुंस्त्वनाशनाः ॥
त एव घृतसंयुक्तास्त्रिदोषशमनाः परं । "

See also p. 683 —" मुद्गान् मसूरान् चणकान् कुलत्थान् समकुष्ठकान् ॥ १५० ॥
आहारकाले यूषार्थं ज्वरिताय प्रदापयेत् । "

2. Ed. in *G. O. Series*, Baroda, Vol. II (1939).

The uses of C in cookery[1] as mentioned in the *Manasollasa* are as follows :—

In the chapter on अन्नभोग the author describes several dishes, both vegetable and non-vegetable (*pp. 115-136*).

(i) *Caṇaka* (gram) is to be ground in a घरट्ट (grinding-stone) and then its pulse is to be cooked with spices. This is called विदलपाक (pp. 116-117).

(ii) पूरिकाs prepared from चणकपिष्ट (or gram-flour) and boiled in oil are mentioned by our author (p. 119).

(iii) The preparation of वेष्टिकाs and घोसकs is described in the following verses (p. 119) :—

" हरिमन्थस्य विदलं हिङ्गुजीरकमिश्रितम् ।
लवणेन च संयुक्तमार्द्रकेण समन्वितम् ॥६१॥
वेष्टयित्वा गोलकेन वेष्टिका खर्परे पचेत् ।
विदलं चणकस्यैवं पूर्वसंभारसंस्कृतम् ॥६२॥
ताप्यां तैले(ल)विलिप्तायां घोसकान्विपचेद्बुधः ।
माषस्य राजमाषस्य वट्टाणस्य च घोसकान् ॥६३॥
अनेनैव प्रकारेण विपचेत्पाकतत्त्ववित् । "

It would appear from the verses that the author asks us to use the pulse of हरिमन्थ in the preparation of वेष्टिकाs, while in the preparation घोसकs he prescribes the use of the चणक pulse (along with the pulse of माष, राजमाष and वट्टाण). We shall have to see if he drew any distinction between हरिमन्थ and चणक, which are given as synonyms of gram by the *Amarakośa*.

(iv) The use of चणक and हरित चणक in non-vegetarian dishes is prescribed by Someśvara (p. 124).

(v) In the chapter on वास्तुपशमन, चणकौदन is mentioned along with घृतौदन, मुद्गौदन, मांसौदन, दध्योदन among the offerings to the deity (pp. 10-11).

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1. Prof. R. D. Karve, M.A., who has written a book on Dietetics in Marathi (आहारशास्त्र) informs me in a letter dated 7-11-1945 :— "About *gram*, I find in an American dictionary that it belongs to the East Indies. An *ounce* of *gram* (dry weight) contains 5·70 *grammes* of *protein*, 1·30 of *fat* and 15.30 of *Carbohydrates* giving 96 calories. It also contains *Vitamins* A and B to an appreciable extent, but not the other vitamins."

These references to *C* and its various preparations in c. *A. D. 1130* show how this कुधान्य of Suśruta's time had attained wide celebrity and popularity within say a period of 1000 years from *Suśruta* as proved by its use as food for gods, men, and animals described by Someśvara.

(5) The use of *C* in Brahmanical worship in connection with वास्तुशमन referred to above has its parallel in the references to its use in Jain ritual as well. In a book on the Jain ritual called विधिप्रपा[1] by Jinaprabhasūri composed in *Saṁvat 1363* (= *A.D. 1307*)[2] at Kosalānagara we find the following references to *C* :—

(i) *Page 101* — In section 106 called प्रतिष्ठोपकरण संग्रह, चणा is mentioned among the seven *dhānyas* as follows :—

"सात धनउं— सण बीज, कुलत्य, मसूर, वल्ल, चणा, व्रीहि, चवला"

(ii) *Page 101* — The use of चणक for प्रतिष्ठाविधि is referred to as follows :—

"ततो गन्धपुष्पयुक्तसप्तधान्यस्नपनमञ्जलिभिः ।
तन्वेदम्–शालि–यव–गोधूम–मुद्ग–वल्ल–चणक–चवला– इति "

Jinaprabha's *Vidhiprapa*, though mainly Prākrit, contains some portions in Sanskrit. He uses both the names of *C* — (1) Prākrit चणा and (2) Sanskrit चणक.

(6) In the *Aṣṭāṅgasaṁgraha* of Vāgbhaṭa I (*c.A.D. 625*) we get the following verse under शिम्बिधान्यवर्ग of ch. 7 (अन्नस्वरूपविज्ञानीय) of *Sūtrasthāna* :—

Page 44—"शिम्बिजामुद्गमाषाढल्यवनमुद्गमकुष्टकाः ॥ २१ ॥
मसूरचवलाटक्यश्चणकाश्च पृथग्विधाः ।
कषायस्वादुलघवो विबन्धाध्मानकारिणः ॥ २२ ॥"

The commentator Indu makes no remarks on चणक in the above extract.

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1. Ed. by Muni Jinavijayaji, N. S. Press, Bombay, 1941 जिनदत्तसूरि प्राचीन पुस्तकोद्धार फण्ड — No. 44.

2. Vide 16 of Biographical account of Jinaprabhasūri by AgarchandNahtagiven in the above edition. Mr. Nahta has given here a list of Jinaprabha's works in which I find the following entry :—

" विधिप्रपा,३ मं, ६५७४, सं. १३६३ विजयदशमो, कोशलानगर "

3. Other materials mentioned under section 106 include लाज, यव, कंगु, माष, सर्षप, गोधूम, जवारा, cf. (जवारक on 108), तिल, etc. जवारा or जवारक is obviously जोंधला (Holcus Sorghum)—(vide my paper on the *History of Jondhala* in *B. C. Law Vol. I*, 1945, pp. 142-158).

(7) In the शिम्बिधान्यवर्ग in chap. 6 (अन्नस्वरूपविज्ञानीय) of the *Sutrasthana* of the *Aṣṭaṅgahṛdaya* of Vāgbhaṭa II (*8th or 9th century A. D.*) we find the following verse :—

Page 87—" मुद्गाढकीमसूरादि शिम्बीधान्यं विबन्धकृत् ।
कषायं स्वादु संग्राहि कटुपाकं हिमं लघु ॥ १७ ॥ "

Here there is no direct[1] mention of *C* by Vāgbhaṭa II but *Aruṇadatta* (*A. D. 1220*) says that चणक is implied by the word आदि (मसूरादीति अत्र आदिशब्देन मकुष्टचणकादीनां ग्रहणम्). *Hemadri* (A. D. 1260) also takes the same view when he says in his comment on the above verse :—

" आदि शब्दात् संग्रहोक्ताः (सू. अ. ७)—"शिम्बिजा मुद्गमाषकुलत्थयवमुद्गमकुष्ठकाः । मसूरचवलाढक्यचणकाश्च पृथग्विधाः, इति "

(8) Dr. G. P. Mujumdar in his article on *Vedic Plants* (*B. C. Law Volume*, Part I, 1945, p. 652) makes the following entry about a plant of the name खल्व :—

"55. *Khalva*	Phaseolus radiatus	*A. V.* ii, 1 ; V. 23. 8 ; *Vāj. Saṁ.* xviii, 12
Caṇaka	Cicer arietinum	महीधर glosses it with चणक (Chick pea)
Niṣpāva	Vigra catjang	*Bṛhad. Up.* VI. 3. 32 — सायण glosses it with निष्पाव"

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1. There is a direct mention of चणक in the निदानस्थान of अष्टांगहृदय (p. 494 of Paradkar Shastri's Edition, N. S. P., Bombay, 1939) as follows :—

"मुद्गकोद्रवजूर्णाह्वकरीरचणकादिभिः"

चणक, जूर्णाह्व (= जोंधळा *Holcus Sorghum*) etc. are not recommended for persons suffering from piles (अर्शस्).

In foot-note 4 on p. 87 Paradkar Shastri states :—"अस्याग्रे—

" असृक् पित्तहरो रूक्षो वातलश्चणकः स्मृत " इत्यधिकः पाठः (in अ Ms)

2. The word निष्पाव occurs in the *Carakasaṁhita* (*Sutrasthana*, ch, 26) as follows :—

"तथा कट्वनकमकुष्ठककुलत्थमाषनिष्पावाः पयसा सह विरुद्धाः ।"

Cakrapaṇidatta (c. A. D. 1060) does not comment on निष्पाव in this line.--निष्पाव is mentioned in the शमीधान्यवर्ग by चरक as follows :—

"अल्पगुजः शैडगजो, निष्पावा वातपित्तलाः ॥"

Cakrapaṇidatta explains :—"निष्पावो बल्लः."

In the शमीधान्यवर्ग itself *Caraka* gives the properties of चणक separately as—"चणकाश्च मसूराश्च etc.". It is, therefore, clear that he regarded चणक and निष्पाव as different.

(*continued on the next page*)

I cannot say how for Mahīdhara's identification of खल्व plant (mentioned in the *Atharvaveda*, the *Vājasaneya Saṁhitā* with चणक is correct, as Mahīdhara lived between A. D. 1550 and 1620. Similarly Sāyaṇa's explanation of खल्व as "निष्पाव" is also suspicious. The names चणक and हरिमन्थ, both found in the *Amarakośa* and *Suśrutasaṁhitā* are not found in the list of Vedic plants recorded by Dr. Majumdar.

For identifying खल्व with either चणक or निष्पाव we must have some testimonyof the earlier texts rather than that of the commentators of the 14th and 16th centuries viz. Sāyaṇa and Mahīdhara respectively.

(9) In the अष्टाङ्गहृदयकोश by K. M. Vaidya, Trichur, 1936, the following extracts have been recorded under चणक :—

P. 212 — (1) *c. A. D. 1450* — राजनिघण्टु of नरहरि gives the synonyms for चणक :—

" चणस्तु हरिमन्थः स्यात् सुगन्धः कृष्णकञ्चुकः ।
बालभोज्यो वाजिभक्षश्चणकः कञ्चुकी च सः ॥"

(2) भावप्रकाश of भावमिश्र (*c. A. D. 1550*) gives the properties of चणक :— " चणकः शीतलो रूक्षः etc." He also mentions different properties for चणक when it is अंगार-भृष्ट (fried on burning coal), आर्द्रभृष्ट (fried when green) तैलभृष्ट (fried in oil), शुष्कभृष्ट (fried when dry) etc. Mr. Vaidya records further the properties of black Caṇaka (कृष्णचणक) as follows :—

" कृष्णस्तु चणकः शीतो मधुरश्च रसायनः ।
बलकृच्छ्वासकासघ्नः पित्तातीसारपित्तहा ॥ "

This verse is taken from " नि. र. " (= निघण्टुरत्नाकर ?) a late medical work.

(10) The अग्निपुराण (Venkateshvara Press, Pothi Edition) contains the following references to चणक :—

(*continued from the previous page*)

The अष्टाङ्गसंग्रह contains several references to निष्पाव as follows :—

(1) सूत्र० Chap. 7 —"निष्पावस्तु सरोक्षः" The commentator इन्दु explains:— निष्पावो राजशिम्बिः "

—"चिल्लीलट्वाक निष्पाव"— इन्दु explains :— "नि० राजशिम्बी"

Chap. 8— "वमनं दद्यात् । निष्पावाम्बुभिर्वा"...इन्दु explains "निष्पावः शिम्बीधान्यविशेषः"

Chap. 9— "कुलत्थमाषनिष्पावाः"—Here इन्दु does not explain the word निष्पाव.

The भावप्रकाश (*c. A. D. 1550*) repeats Indu's identification of निष्पाव as follows :—

" निष्पावो राजशिम्बिः स्यात् वल्लकः श्वेतशिम्बिकः "

(i) *Chap. 175* (folio 123) — चणक is forbidden in the observance of a fast :—

" उपवासः स विज्ञेयः सर्वभोगविवर्जितः ।
कारयं मांसं मसूरं च चणकं कोरदूषकम् ॥ ६ ॥
शाकं मधु परान्नं च त्यजेदुपवसन् स्त्रियम् । "

(ii) *Chap. 279* (folio 199) सिद्धौषधानि

—" मुद्गा मसूराश्चणकाः कुलत्थाश्च मकुष्ठकाः ॥ ६ ॥ "
—" मकुष्टचणका मुद्गा भद्या गोधूमका हिताः ॥ ८ ॥"

(iii) *Chap. 289* (folio 199) अश्वलक्षणाचिकित्सकम् — Here चणक is prescribed as food for horses.

" निस्तुषाणां प्रदातव्या यवानां चतुराढकी ।
चणकव्रीहिमौद्गानि कलायं वापि दापयेत् ॥ ५० ॥ "

When this section of the *Agnipurana* was composed, the practice of using चणक as food for horses as an alternative to यव was getting into vogue. According to Dr. Hazra the present *Agnipurana* incorporating summaries of works on the different branches of learning was *"compiled sometimes during the 9th century"* (Vide p. 138 of *Puranic Records*, Dacca, 1940). We may, therefore regard the above reference to चणक as food for horses along with यव, as belonging to the period *A. D. 800-900*.

(11) In the बृहत्संहिता of Varāhamihira (*c. A. D. 500*) I have found the following references to चणक :—

(i) *Chap. 15* — verse 14 (P. 96 of Calcutta Edition, 1865)

—" इन्द्राग्नि देवते रक्त-
पुष्पफल शाखिनः सतिलमुद्गाः ।
कार्पास मास चणकाः
पुरन्दर हुताश भक्ताश्च ॥ "

(ii) *Chap. 16* — verse 34 (P. 105)

—" कटुतिक्त रसायन विधव-
योषितो भुजगतस्करमहिष्यः ।
खरकरभचणकवातुल—
निष्पावा चार्कपुत्रस्य ॥ ३४ ॥ "

(12) In the *Bower Ms* — Part II (ed. by Hoernle) p. 56 the reading "चणके" has been restored by the editor but it cannot be relied on for evidential purposes.

(13) In the Jaina Prākrit work *Pauma-Cariya* (Ed. by Profs. N. A.

Gore and R. D. Laddu, Poona, 1941) canto 33, verse 16 (p. 6) we get a reference to चणय (= चणक) as follows :—

" चणय तिल मुग्गमासा
विक्खिरिया तन्दुला य योगविहा ।
दीसन्ति बहुदेसे
जिण्णा य जरगावो पडिया ॥ १६ ॥ "

This is a description of the country of Avantis (अवन्तिविसय). *Translation* :— "There are seen scattered *grams*, sesamum, *mug*, beans and rice of many species as well as old bulls lying down in many places."

(14) The पञ्चतन्त्र (मित्रभेद) N. S. Press, 1902, refers to चणक and the practice of frying it as follows :—

Page 23 — " उत्पतितोऽपि हि चणकः
शक्तः किं भ्राष्ट्रकं भंक्तुम् ॥ १४३ ॥ "

(15) The कल्पद्रुमकोश (*A. D. 1660*) edited in G.O. Series (Baroda, 1928, p. 159) refers to fried and salted (gram) *pulse* as follows :—
—" दालिः स्त्रियां पुंसि सूपो दाली स्यात्तवणान्विते "

(16) The राजनिघण्टु of Narahari (*c. A. D. 1450*) which is later than मदनविनोद (A. D. 1374) defines दालि as follows :—
" स्फोटस्तु चणकादीनां दालीति परिकीर्तिता "

(Vide p. 389, Chapter XVI of राजनिघण्टु — Anandashram Sans. Series, 1896— शाल्यादिवर्ग).

(17) The गुह्यसमाजतन्त्र (G. O. S. Baroda) which Dr. Benoytosh Bhattacharya assigns to *3rd Century A. D.* (see Intro. p. XXIX) contains references to चणक in the following extracts :—

Page 53—" हुंकारं गुटिकां ध्यात्वा चणकास्थिप्रमाणतः ।
मध्ये स्वदेवताबिम्बं मुखे चिन्त्य विभावयेत् ॥ "

(the expression "चणकास्थिप्रमाणतः is repeated thrice on this page). —

Page 25— " यवमात्रं प्रयत्नेन नासिकाग्रे विचिन्तयेत् ॥
चणकास्थि प्रमाणं तु अष्टपत्रं सकेशरम् ।
नासिकाग्रे इदं स्पष्टं भावयेत् योषितत्परः ॥ "

(18) The आकाशभैरवकल्प (B. O. R. Institute, Ms No. 43 of 1925-26) mentions the materials to be kept in store (वस्तुसंग्रहस्वरूप). Referring to the granary it observes :—

" व्रीहिगोधूमचणकमुद्गमाषयवादिकम् ।
धान्यजातं च संगृह्य धान्यकोष्ठेषु निक्षिपेत् ॥ "

This work appears to have been composed between A. D. 1500 and 1700.

(19) The *Hobson-Jobson* (London, 1903) in the article on *Kitchery* (**खिचड़ी**) refers to the use of "pease" as food for horses in the following extract :—

c. 1475 — " Horses are fed on *pease*, also on *Kichiris*, boiled with sugar and oil etc." — *Athan Nikitin.*

Possibly " *pease* " here are equal to " *Chick-peas* ".

(20) Even though **चणक** appears to have come into use as food for horses from the time of the *Agnipurana* (9th century A. D.) the reputation of **यव** as food for horses remained untarnished as will be seen from the following references :—

(i) King Bhoja in his **युक्तिकल्पतरु** (Calcutta, 1917) (*c. A. D. 1050*) has a section on **अश्वयुक्ति** in which he prescribes **यव** [1] as food for horses :—

P. 193 — "यवांश्च पक्त्वा वितरेद् विधिज्ञः ॥ २५ ॥"

P. 191 — "शिशिरे............

तदनु प्रातर्भोजयेद् यवांश्च ।

यवयवसांश्च तथामृतस्वरूपान् ॥ २६ ॥ "

(ii) The **शार्ङ्गधरपद्धति**, (*c. A. D. 1325*) B. S. S. Edition, p. 262, verse 1711, prescribes **यव** for horses :—

— "दूर्वा घृतं यवानीरं शिशिरं सर्वदा शुभम् "

(21) Nakula in his **अश्वचिकित्सित** (*Bib. Indica*, Calcutta, 1887, p. 39) prescribes **चणक** moistened with water for horses in the absence of **यव** :—

" यवाभावेऽप्य चणकान् दद्यादार्द्रतरान् सदा । "

The practice of feeding horses on **चणक** moistened in water referred to by Jayadatta is corroborated by Tavernier (A. D. 1641-1668) who observes in his *Travels* (Vol. I, pp. 102-3) as follows :—

They receive a measure of *Chick-peas* which the groom has crushed between two stones and *steeped in water*. It is these which take the place of hay and oats."

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1. King Bhoja refers to **चणक** in the following verse of the **अश्वयुक्ति** (section on **आरिष्टानि** p. 189 of **युक्तिकल्पतरु**, 1917) .—

" रक्ते मृत्युस्त्रिभिर्मासैश्चतुर्भिश्च विचित्रके ॥६१ ॥

पञ्चभिर्नीलवर्णे च षड्भिर्भ्रम समाकृती ।

सप्तभिः पाटलाकारे चणकाभे तथाष्टमिः ॥ ६२ ॥ "

(22) The Vijayanagar horses in the 16th century were fed on चणक. *Barbosa* (A. D. 1500) says :—

"The food is rice boiled with *Chick-peas* and other pulse and each man......comes to draw the ration for his *horse* or elephant" (Vide pp. 130-131 of *Third Dynasty* by Venkataramanayya. Madras).

(23) Prof. Dalgado (p. 172 of of *Portuguese Vocables*, G. O. S. Baroda, 1936) has recorded some information about चणक (gram) as follows :—

"*GRAO* - Konk. *graniv*. the chick-peas ; *Cicer arietinum* — Lunn ... .The Portuguese formerly called the above vetch *gravo de cavalo* ('vetch for horses') and not merely *grao* ; it is smaller than the kind grown in the Iberic Peninsula. At the time when the Portuguese took Goa they found that *mungo* (Hindustani *muṅg* was used there as *horse-food*).

(24) The word चणक (or its synonym हरिमन्थ or हरिमन्थक) is not found in the कात्यायनवार्तिक, अष्टाध्यायी, महाभाष्य and धातुपाठ (see Word-Indices to these works published by the B. O. R. Institute Poona). In the word-index to गणपाठ it is recorded by Pt. Chitrav Shastri as "चणक, ७१, ७२ " hut the commentary काशिका (*c. A. D. 661*) has different variants for this चणक viz. वणंक, वर्ण. As the गणपाठ appears to have been considerably tampered with since Pāṇini's times this reference to चणक in the गणपाठ is not reliable. I hope that the specialists in Sanskrit grammar will examine this point more closely and see if my statement is correct.

(25) The *Arthaśāstra* of Kauṭilya (or Kauṭalya) as its word-index shows, does not contain the words चणक or हरिमन्थ.

(26) The बृहद्गार्गीयसंहिता (Ms No. 542 of 1895–1902 dated Saṁvat 1881 A. D. *1825*) contains a chapter on तुलाकोश in which there is reference[1] to चणक and other grains as will be seen from the following stanzas on folio 192 of the Ms :—

" शालीन् व्रीहिन्यवांश्चैव गोधूमांश्च तिलांस्तथा ।
कोद्रवांश्च प्रियंगूंश्च मुद्गान्माषान् ससर्षपान् ॥
चणकान्सहनिष्पावान् कुलत्थान् सहरेणुकान् ।
सामान्येतानि कृत्वा तु तुलाधारेण धारयेत् ॥ "

(27) In the हस्त्यायुर्वेद of पालकाप्य (*Ānandāśrama Sans. Series*, Poona, 1894, p. 646), a big treatise on the care and medical treatment of

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1. This reference was kindly supplied to me by Mr. S. N. Savadi, B.A. (Hons.), my Senior Cataloguing Assistant in the Manuscript Department of the B. O. R. Institute, Poona.

elephants I have traced the following verse containing a reference to the use of चणक in the diet of the elephant along with यव, गोधूम, कलाय etc. :—

" तदाद्दि यवगोधूमाः कलायाश्चणकास्तथा ।
यवसार्थं प्रशस्यन्ते शाल्यन्नं चैव भोजनम् ॥ ५६ ॥"

(28) The commentators क्षीरस्वामिन् (*c. A. D.* 1050) and वन्द्यघटीय सर्वानन्द (*A. D. 1159*) comment on the line in the *Amarakośa* " चणको हरिमन्थकः " as follows :—

क्षीरस्वामिन् —"चणते दीर्यते चणकः ।
हरिभिर्मथ्यते हरिमन्थकः ॥ "
सर्वानन्द —" चणकद्वयं चणके । चन च नोच्यते ॥
इत्यस्माद् धातोरोणादि कक्कुना धातुप्रदीपादौ
चनकः साधितः । चणकस्तु चिन्त्यः ।
हरिमन्थके स्वार्थिकः कः ॥ "

But these commentators lived in times, when चणक as horse-food was quite current in India.[1]

(29) Hemacandra in his देशीनाममाला (*c. A. D. 1140*) explains the word हिरिमन्थ for चणक as follows :—

" हिरिमन्था चणकाः । हीरो सूचीमुखाभदार्वादि वस्तु ।
वज्रवाचकस्तु हीरशब्दः संस्कृतसमः । हरवाचकस्तु
हरशब्दभवः । केचित् हीर शब्दं भस्मन्यपि प्रयुञ्जते "

(see p. 343 of देशीनाममाला, B. S. Series, B. O. R. Institute, Poona, chapter VIII, 70).

We have now the three variants of the synonym for चणक viz. हरिमन्थ, हरिमन्थक and हिरिमन्थ.

(30) The use of चणक in worship is found recorded in the following verse of Bharata's नाट्यशास्त्र (Vol. I, ed. by M. R. Kavi, G. O. Series, Baroda, 1926, page 77) chap. III, verse 40 :—

" अर्चयेद्भूतसंघांश्च चणकैः पललाप्लुतैः ॥ ४० ॥ "

Mr. Kavi records the following variants for the above reference to चणक :—

" वेणूसक्तलाप्लुतै (ग) " and " पयसाप्लुतैः (ज) "

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1. See my papers on this subject viz.

(1) "Role of Yava and Caṇaka in the Regimen of Indian Horses as disclosed in the Aśvāyurveda of Vāgbhaṭa, son of Vikrama" in *Dr. A. B. Dhruva Volume*.

(2) "Use of Caṇaka as horse-food, vouched by Five Sanskrit Treatises on the Aśvaśāstra" in the *Prācyavāṇī*, Calcutta, 1946.

We may compare the above use of चणक in worship with the use of चणकोदन as an offering to deity mentioned in वास्तुशमन in the मानसोल्लास (A. D. 1130) and the use of चणक in Jaina ritual as laid down in the आचारदिनकर (*A. D. 1307*)—(see references Nos. 4 and 5 given above).

(31) There is no reference to चणक in the followingration[1] forhorses laid down by Kauṭilya's अर्थशास्त्र :— (1) Rice, (2) Barley (यव), (3) *Priyangu* (4) *Mudga*, (5) *Maṣa*, (6) Oil, (7) Salt, (8) Flesh, (9) Broth, (10) Curd, (11) Sugar, (12) Liquor, (13) Milk. (Vide p. 147 of *Eng. Trans.* of अर्थशास्त्र, 1929, by Shama Sastry).

This omission of चणक in the ration of horses, given by कौटिल्य in a detailed manner, is significant. चणक as horse-food appears to have been adopted much later than the time of the *Arthaśastra*.

(32) In the medical compendium काश्यपसंहिता which was discovered some years ago by Rajaguru Pandit Hemaraj of Nepal and subsequently edited by him (N. S. Press, Bombay) चणक is referred to in the following stanza on p. 171 :—

" तैलानि कङ्कवाढकी यावकाश्च
मूलानि कन्दाश्चणकाः कलायाः । "

This compendium is one of the earliest medical texts like the चरकसंहिता, the सुश्रुतसंहिता, the भेलसंहिता and others.

(33) The भेलसंहिता, Ed. by Asutosh Mukerji, Calcutta, refers to चणक in the following lines on p. 46 :—

" मुद्गान् मसूरांश्चणकान् कुलुत्थांश्च सतीलकान् "

(34) शिवदाससेन in his commentary on the द्रव्यगुणसंग्रह of चक्रपाणिदत्त c. A. D. 1060) quotes the verse on चणक from the *Carakasaṁhitā* as follows :—

" तदुक्तं चरके—'चणकाश्च मसूराश्च खण्डीकाः सहरेणवः ।
पित्तश्लेष्मणि शस्यन्ते' इति "

(Vide p. 30 of द्रव्यगुणसंग्रह ed. by Kailasa Chandra Sen, Calcutta, 1874).

(35) चक्रपाणिदत्त records the properties of चणक in his द्रव्यगुणसंग्रह (p.29) as follows :—

" चणको वातलः शीतः कफास्रक् पित्तपुंस्त्वनुत् ॥ २८ ॥ "

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1. Cf.thedaily rationof a horse recorded in *Peshwa's Diaries* about *A. D. 1760* (*P.S. No.22*—Document No. 172) :—

" एक घोड्याचा खुराक १। पायली हरभरे (gram) ; १ शेर पीठ (flour) ; अर्धा शेर तूप (ghee) ; पावशेर साखर (sugar) ; २ टाक काळे मिरे (black Pepper)."

(36) The Prākrit-Hindi Dictionary पाइअ सद्द-महण्णवो (प्राकृत-शब्द-महार्णव) by Har Govindadas (1923-28) records the following words about चणक :—

P. 399 — चणइया— स्त्री [चणकिका] = मसूर ; अन्नविशेष

(Usages) :— ठाणंगसुत्त (५, ३) आ. समिति (1918, Bombay)

चणग (See चणग्र)

P. 398 — चणम and चण — [चणक] = चना ; अन्नविशेष

—(Usages) :— जंबूद्वीपप्रज्ञप्ति (D. L. P. Fund, Bombay, 1920) १

—कुमारपालचरित (B S. S. 1900)

—गाथासप्तशती (Ed. by Weber, Leipzig, 1881, and N. S. Press, Bombay, 1911) ५५७

(c. A. D. 1140)— देशीनाममाला, १, २१ (B. S. S. 1880)

P. 399 — चणग = (चणक)

Usages A. D. 1143 :— सुपासनाहचरिअ ६३१ (Benares, 1918)

about (*A. D. 1100*)— सुरसुंदरीचरिअ ३, १४८ (Benares, 1916)

— चणगगाम[1] (= चणकग्राम)—ग्रामविशेष , गौडदेशका एक ग्राम

— चणगपुर-नगरविशेष ; राजगृह—नगर का असली नाम .

It will be seen from the above references that चणक is represented in Prakrit texts also from very early times.

(37) In the *Mahānubhāva* text of *c. A. D. 1250* called the लीळाचरित्र (Ed. by H. N. Nene, Nagpur, 1936, 1937) the Marathi word चणे (gram) for चणक is found in the following line :—

Part IV, p. 51—"गहु : चणे : जोंधले : ऐसे होते : तेयाचा भक्तजनाचा ठाई उपहारू केला "

Here the use of gram (चणे) along with गहु (wheat) and जोंधळे (Jawar, *Holcus Sorghum*) as food current in the Maratha country is distinctly mentioned.

(38) क्षीरस्वामिन् (c. *A. D. 1050*) the commentator of the *Amarakośa* specifies in the following lines 17 edible grains in which चणक (gram) is mentioned :—

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1. Compare the derivation of the word चाणक्य as son of चणक ऋषि given by Hemacandra in his lexicon अभिधानचिन्तामणि (३ मर्त्यकाण्ड, verse 517) as follows :—

" वात्स्यायने मल्लनागः कौटिल्यश्चणकात्मजः । "

Hemacandra explains :— "चणकस्य ऋषेः आत्मजः चणकात्मजः , चाणक्योऽपि "— I cannot say if this derivation is historically correct.

" व्रीहिर्यवो मसूरो गोधूमो मुद्गमाषतिलचणकाः ।
अणवप्रियङ्गुकोद्रवमकुष्ठकाः (शालिराढक्यः) ।
द्वौ च कुलायकुलत्थौ शण—सप्तदशानि धान्यानि ॥ "

(See p. 203 of *Amarakośa*, ed. by H. D. Sharma and N. G. Sardesai, Poona, 1941).

On p. 204, क्षीरस्वामि explains चणक as " चण्यते दीयते चणकः "

(39) The Kashmir poet Damodara Gupta in his Sanskrit work कुट्टनीमत (*A. D. 755-786*) refers to चण (= चणक) in thefollowing stanza :—

" गृहशतमधिकमटित्वा कलम—कुलत्थादि—चण—मसूरादि ।
एकीभूतं भुङ्क्ते क्षुधोपतप्तोऽध्वगो भैक्षम् ॥ २२१ ॥"

(Vide p. 52 of कुट्टनीमत ed. by Tripathi, Bombay, 1924). Here चण (gram) is mentioned along with कलम, कुलत्थ, मसूर etc. gathered by a wandering beggar for his food from hundred different houses. चणक or चण was obviously grown in plenty in Kashmir or imported there from other provinces in the 8th century A. D. so as to be available for distribution as alms to beggars as shown by the above stanza.

(40) In the medical compendium called the शार्ङ्गधरसंहिता (ed. by P. L. Vaidya, Poona, 1917) चणक is referred to in tbe following verses:—

Khanda 3, chap. 2 — Page 8 (स्नेहपानविधि)

" रूक्षस्य स्नेहनं स्नेहैरतिस्निग्धस्य रूक्षणम् ।
श्यामाकचणकाद्यैश्च तक्रपिण्याकसक्तुभिः ॥ ३१ ॥ "

This treatise mentions अहिफेन (Opium) on pages 165, 75 etc. According to Pt. D. K. Shastri शार्ङ्गधर (son of दामोदर) the author of the शार्ङ्गधरसंहिता *"definitely lived in the 14th century"* (Vide his article on *Medical Science in Gujarat* in *Journal of Gujarat Research Society*, April-July 1945, p. 84).

(41) The lexicon वैजयन्ती (*c. A. D. 1055*) refers to चणक in the भूमिकाण्ड (वैश्याध्याय) as चण :—

"वातुलश्चणः" (Vide 126 of Oppert's Edition).

(42) In the *Hobson-Jobson* (By Yule and Burnell, London, 1903) there is an article on *GRAM* (= चणक) in which references to *Gram* as horse-food are recorded from A.D. 1513 onwards (vide pp. 392-393 of *Hobson-Jobson*).

(43) In his टिप्पणी on the अष्टाङ्गसंग्रह (Poona, 1940—सूत्रस्थान) Pt. R. D. Kinjavadekar quotes the following verses containing a reference to चणक :—

" निस्तुषैश्चणकैर्भृष्टैस्तुर्याशैश्च यवैः कृताः ।
सक्तवः शर्करासर्पिर्युक्ता ग्रीष्मेऽतिपूजिताः ।
शुक्ला लघवो बल्याः शीतास्तृप्तिरुचिप्रदाः ॥ "

No source, from which this extract is taken, is indicated by Pt. Kinjavadekar.

(44) In the Marathi Dictionary called the शब्दकोश, Poona, 1934, the equivalents of चणक are recorded as follows :—

Page 1134 — चणा=हरभरा (मोठ्या दाण्याचा)
Usage :—" वानराचें डेवणें। गालफडा भरावे चण "

This usage shows the fondness of monkeys for चणक.

Page 3175—हरब(भ)रा=चणा [सं. हरि=घोडा or हर=शिव+भरक]. I cannot say how far this etymology of हरभरा is correct. I may, however, compare the word हरभरा for चणक with हरिमन्थ or हरिमन्थक its synonym recorded in the *Amarakośa* and the *Suśrutasaṁhita*. In the absence of a systematic record of usages of words any imaginary derivations of words are inconclusive, if not at times ridiculous.

(45) In the treatise on horses by वाग्भट, son of त्रिकप, called the अश्वायुर्वेद (Ms No. 581 of 1899-1915 in the Govt. Mss Library at the B. O. R. Institute, Poona) there are two small sections called the यवाविधि and चणकाविधि dealing with the praise of यव and चणक respectively as food for horses (folios 55-56). This Ms is dated (*Saṁvat 1707* = A. D. 1651). I have sent for publication a paper on these sections to the *Dr. A. B. Dhruva Commemoration Volume*. I may, however, note here the following important verses from the चणकाविधि which tell us that यव was the principal horse-food in the region between the Himalayas and the Vindhya mountains, while to the south of the Vindhyas चणक was favoured as horse-food ; in the western regions मकुष्टक was the principal horse-food.

" हिमालयाद्विन्ध्यभुवस्तु यावत् यवाः प्रधाना कथिता मुनीन्द्रैः ।
दिग्दक्षिणायां चणकः प्रशस्तो मकुष्टकः पश्चिमभूमिभागैः ॥ "
—" चणको दक्षिणे विन्ध्याद् उत्तरेण यवाहितः "

The date of this अश्वायुर्वेद is not fixed. It appears to be earlier than about A.D. 1000. In the 54 breeds of horses mentioned in this work no reference is made to the Persian and Arabian horses which are mentioned by जयदत्त and नकुल in their treatises on the horses.

(46) In another treatise on horses called the सारसमुच्चय (*Ms No. 119 of 1866-68* in the Govt. Mss Library at the B. O. R. Institute, Poona) by one कल्हण, son of बिल्हण, there are references to चणक as horse-food on folios 10 and 11 as follows :—

—" भेड्ड: सुजातश्चणकोतिनील: पुष्पै: फलै: संचित एव देय: "

—" हिमालयाद्विन्ध्यमुवस्तु यावद् यव: प्रधान: कथितो मुनीन्द्रै:
दिग्दक्षिणायां चणक: प्रशस्तो मकुष्ठक: पश्चिमभूमिभागे ॥ ६ ॥ "

[This verse is identical with the verse quoted by me from the अश्वायुर्वेद (चणकविधि) of वाग्भट].

The date of this सारसमुच्चय is not known. It may be later than A. D. 1000.

(47) विश्वासदेवी in her गङ्गावाक्यावली (ed. by Dr. J. B. Chaudhuri, Calcutta, 1940) deals with the objects that are *not* to be used by a pilgrim performing a *Śraddha* at a holy place. She, however, mentions चणक among the grains that may be offered as will be seen from the following verse :—

Page 252 — " यवैर्व्रीहितिलैर्माषैर्गोधूमचणकैस्तथा ।
सन्तर्पयेत्पितृन्मुद्गै: श्यामाकै: सर्षपद्रवै: ॥ "

According to Dr. Chaudhuri the गङ्गावाक्यावली was composed by विश्वासदेवी, the wife of पद्मसिंह King of Mithila. After the death of पद्मसिंह, विश्वासदेवी came to the throne. विद्यापति was a senior contemporary of विश्वासदेवी who flourished in the *15th century A. D.*

(48) The *Prakrit-Hindi Dictionary* पाइअ सद्द महण्णव (प्राकृत शब्द महार्णव) by Har Govindadasa makes the following entries about हरिमन्थ (—चणक) :

Page 1186— हरिमन्थ (दे) काला चना ; अन्नविशेष

Usages :— श्रा १८ (श्राद्धप्रतिक्रमणसूत्रवृत्ति, D. B. P. Fund, Bombay, 1919).

— पव १५६ (प्रवचनसारोद्धार ed. B. Manek,)

— संबोध ४३ (संबोध प्रकरण, Ahmedabad. 1916)

— दे ८, ७० टि (देशीनाममाला B. S. S. See हिरिमन्थ)

In *Reference No. 29* above I have already quoted the remarks of Hemacandra on हिरिमन्थ. The word हरिमन्थ (or हिरिमन्थ) has been evidently treated as a देशी word in the पा. स. महण्णव, though the *Amarakośa* records it as a synonym of चणक. We have also seen that the सुश्रुतसंहिता records the word हरिमन्थ (see *Reference No. 3* (ii) above). In connection with these usages of the word हरिमन्थ, or हिरिमन्थ we must also investigate the relation, if any, of the Marathi word हरबरा or हरभरा with हरिमन्थ.

(49) In the शुक्रनीतिसार (ed. by Jīvānanda Vidyāsāgara, Calcutta, 1882) we find the following verse containing a reference to यव and चणक as the *best horse-food*. *Page 480* (Chapter IV, 7th prakaraṇa, verse 143) :—

" यवाश्च चणका श्रेष्ठा मध्या माषा मकुष्टकाः ।
नीचा मसूरा मुद्गाश्च भोजनार्थं तु वाजिनः ॥ १४३ ॥ "

Here यव and चणक have been given equal status as food for horses, somewhat like the statement of the अश्वायुर्वेद of वाग्भट, son of विक्रम. However, while the अश्वायुर्वेद allocates the superiority of यव, चणक, and मकुष्टक to the regions between the Himalayas and Vindhyas, the region to the south of Vindhyas and the western region, respectively, the शुक्रनीतिसार merely states that यव and चणक are the best horse-food, माष and मकुष्टक are of middle quality and मसूर and मुद्ग of the lowest quality as horse-food. Judging by this verse we may infer that this verse was composed at a time when चणक had attained a superior status as horse-food but यव had not been superseded by it.

(50) Inhis *Patna-Gaya Report* (A. D. 1811-1812) Francis Buchanan deals with leguminous plants. About चणक he observes :—

Pages 499-500— " ...... the *But* or *Cicer Arietinum* is the most important leguminous crop... .....It is chiefly reared near the Son and in the Southern parts of Sheykpurah, where the system of agriculture is very bad......The variety called *Kabali*[1]—*but*, which has a white flower and is most commonly called *Chana*."

(51) विज्ञानेश्वर (A. D. 1070–1100) the author of the मिताक्षरा commentary on the याज्ञवल्क्य स्मृति mentions the following articles as fit for श्राद्धहविः (oblation at a Śrāddha) :—

व्रीहि, शालि, यव, गोधूम, मुद्ग , माष, मुन्यन्न, कालशाक, महाशल्क, एला, शुण्ठी, मरीच, हिङ्गु, गुड, शर्करा, कर्पूर, सैन्धव, सांभर, पनस, नालिकेर, कदली, बदर, गव्यपयः, दधि, घृत, पायस, मधु, मांस, etc.

He *proscribes* the use of the following articles on the authority of Smṛtis at a Śrāddha ceremony :—

कोद्रव, मसूर, चणक, कुलित्थ, पुलाक, निष्पाव, राजमाष, कूष्माण्ड, वार्ताक, बृहतीद्वय, उपोदकी; वंशांकुर, पिप्पली, वचा, शतपुष्प, उषर, बिडाल, लवण, माहिष, चामर क्षीर, दधि, घृत, पायस.

It is clear from the above statement that चणक had not attained the sanctity attached to यव and other grains at the time, when the मिताक्षरा was composed.

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1. Cf. Parched and salted gram called काबली sold in Poona streets every Friday (The [illegible] calls this gram as पांढरे काबुली हरभरे).

(52) In his *History of Dharmaśāstra* (Vol. II. p. 784) Prof. P. V. Kane records the following quotation from the शङ्खलिखित (in the श्राद्धप्रकाश , pp. 394 aad 404) which allows the employment in offering to gods of all cereals *except* कोद्रव, चणक (gram), माष, मसूर, कुलत्थ and उद्दालक :—

" आश्रमधर्म—अविरोधेन, प्रतिनियतानामोषधीनां
कोद्रव-चणक-माष-मसूर-कुलत्थ-उद्दालकवर्जं निर्वपणीयम् ॥ "

This reference to चणक as forbidden[1] food is in harmony with the remarks of विज्ञानेश्वर about चणक as a cereal proscribed for use in a *Sraddha* ceremony.

(53) In the medical glossary धन्वन्तरिनिघण्टु supposed to be earlier than the *Amarakośa* चणक is mentioned in the following line :—

" (क) कासकृपित्त पुंस्त्वघ्ना अ्रणका वातला हिमा । "

(See folio 36 of Ms *No. 924 of 1884-87*-धन्वन्तरिनिघण्टु dated Saṁvat 1698(= *A. D. 1642*).

In Ms *No. 923 of 1884-87* of धन्वन्तरिनिघण्टु dated Śaka 1605 (= *A. D. 1683*) I could not trace the above line in the धान्यवर्ग (folios 66-68). There is, however, in this वर्ग another line which describes the properties of चणक as follows (folio 67) :—

" चणागुणाः । चणको वातलो रुक्षो विष्टंभी पुंस्त्वनाशनः ।
स कषायो लघुः शीतः पित्तास्रकफनाशनः "

In the printed text of the धन्वन्तरिनिघण्टु (Ānandāshram Sans. Series. Poona. 1896) p. 6, we find the following line about चणक and its properties :--

" चणका वर्तुला प्रोक्ता वातला रक्तपित्तहाः ।"

In spite of the textual variations the reference to चणक and its properties has continued to exist in the extracts given above.

(54) Dhuṇḍirāja in his *Gīrvāṇapadamañjarī* (*C. A. D. 1690-1700*) mentions चणक as the product of Bengal along with व्रीहि, गोधूम, चणको(of two kinds), माष, मुद्ग, मसूर, राजमाष, कुलित्थ, लंका, तिल, सर्षप, प्रियंगु, एणव, नीवार, श्यामाक,

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1. Prof. Kane records the following verse from ब्रह्मपुराण (quoted in गृ. र. and श्राद्ध प्रकाश) which forbids the use of cereals such as राजमाष, स्थूलमुद्ग (= मेथी according to Frof. Kane) etc. :—

" राजमाषा स्थूलमुद्गास्तथा वृपयवासकौ ।
मसूरः शतपुष्पाश्च कुसुम्भः श्रीनिकेतनम् ॥
सस्यान्येतान्यभक्ष्याणि न च देयानि कस्यचित् "

धवल:, सर्षप, and मुद्ग (Vide folios *13-18* of Ms *No. 21 of 1919-1924* in the Govt. Mss Library, B. O. R. Institute, Poona.)[1]

With a view to give the reader an idea about the antiquity of *Caṇaka* and its history as disclosed by the foregoing evidence I record below the chronology of the references so for collected by me :—

Chronology	Reference C = *Caṇaka* (Cicer Arietinum)
	C mentioned in the भेलसंहिता
	C mentioned in the काश्यपसंहिता.
Between B. C. 200 and A. D. 300	C mentioned in the नाट्यशास्त्र of भरत for use in worship.
A. D. 100-200	C mentioned in the चरकसंहिता.
Before A. D. 300	C mentioned in the सुश्रुतसंहिता as कुधान्य ; हरिमन्थज शाक is also mentioned is this work.
Between B. C. 200 and A. D. 300	C mentioned in the Jain Prākrit work *Pauma Cariya* as चणय growing in the *Avanti* country.
A. D. 200-300	C mentioned in the गुह्यसमाजतन्त्र.
A. D. 500	C mentioned in the बृहत्संहिता of वराहमिहिर.
	C (= चणक) mentioned in the गाथासप्तशती of हाल.
	C mentioned in the पञ्चतन्त्र (मित्रभेद) as also the practice of frying it.
Before A.D. 500	C mentioned in ठाणंगसुत्त of Jain canon (as चाणइया). चणग mentioned in जम्बुद्दीवपण्णत्ति also.
Between A.D. 500 and 800	C mentioned in the अमरकोश along with its synonym हरिमन्थक.
c.A.D. 625	C mentioned in the अष्टाङ्गसंग्रह of Vāgbhaṭa I.
A.D. 755 - 786	C (= चण) mentioned by दामोदरगुप्त of Kashmir in his कुट्टनीमत.
A.D. 700 - 900	C mentioned in the अष्टाङ्गहृदय of Vāgbhaṭa II.
Before A.D. 800	C and its properties mentioned in the धन्वन्तरिनिघण्टु.
A.D. 800 - 900	C mentioned in the अग्निपुराण— It is forbidden in religious fasts but recommended as food for horses.

1. See also my article on "Glimpses into the Economic, Industrial and Social Life of Bengal as given by a Mahārāṣṭra Brahman of the Seventeenth Century" in *Indian Culture*, Vol. XII, No. 2 (October-December, 1945) pp. 47-56.

Chronology	Reference C = *Canaka* (Cicer Arietinum)
Before A.D. 1000	C recommended for horses in the अश्वचिकित्सित of नकुल.
Before A.D. 1000	C used as food for elephants according to हस्त्यायुर्वेद of पालकाप्य.
Before A.D. 1000	C as food for Horses mentioned in अश्वायुर्वेद of वाग्भट (son of विक्रम).
c.A.D.1050	C (= चण) mentioned in the वैजयन्ती lexicon of यादवप्रकाश.
c.A.D. 1050	C mentioned by क्षीरस्वामिन् on *Amarakośa*, among?17 edible grains.
A.D.1060	C mentioned by चक्रपाणिदत्त in his द्रव्यगुणसंग्रह.
A.D. 1100	C mentioned in सुरद्रीचरित.
A.D. 1130	C mentioned in the मानसोल्लास of सोमेश्वर as food for *men, pigs* and *fish*.
A.D 1143	C (= चणग) mentioned in सुपासनाहचरिय
A.D.1159	C mentioned by सर्वानन्द on *Amarakośa*.
A.D. 1070-1100	C prohibited at a श्राद्ध by विज्ञानेश्वर in his मिताक्षरा.
A.D. 1088-1172	C and its synonym हिरिमन्थ mentioned in the देशीनाममाला of हेमचन्द्र.
c.A.D. 1250	C (= चणे) mentioned in the Marāthi Mahānubhāva text लीळाचरित्र.
A.D. 1307	C used in Jaina ritual according to विधिप्रपा of जिनप्रभसूरि.
Between A.D. 800 and 1300	C mentioned in the शुक्रनीतिसार as best horse-food like यव.
	C mentioned in the शार्ङ्गधरसंहिता.
c.A.D. 1450	C mentioned by विश्वासदेवी in her गङ्गावाक्यावली among grains to be offered by a pilgrim for a श्राद्ध.
c.A.D. 1450	C mentioned in the राजनिघण्टु of नरहरि (in Kashmir). The pulse of चणक is called दाली.
A.D. 1475	C (=pease used for preparing Kichiri or खिचडी)—see *Hobson-Jobson*.
c.A.D. 1550	C mentioned in the भावप्रकाश of भावमिश्र.
A.D. 1500-1650	C mentioned in the आकाशभैरवकल्प as being stored in a धान्यकोष्ठ or granary.
A.D. 1500	C (=chick-peas) as food for Horses of Vijayanagar according to *Barbosa*.
A.D. 1513 onwards	C (= gram) references in *Hobson-Jobson*.
A.D. 1660	C and its pulse दालि mentioned in the कल्पद्रुकोश.
A.D. 1641-1668	C used for Horses according to Tavernier's *Travels*.

Chronology	Reference C = *Caṇaka* (Cicer Arietinum)
c.A.D. 1700	*C* mentioned among Bengal grains by धुण्ढिराज in his गीर्वाणपदमञ्जरी.
A.D. 1811	*C* and its varieties mentioned by Francis Buchanan in his *Patna–Gaya Report*.

The cumulative effect of the evidence recorded in this paper proves the history of *Caṇaka* for about 2000 years on Indian soil. Some features of this history are as follows :—

(1) Some of the earliest medical texts like those of चरक, सुश्रुत, भेल and काश्यप record the properties of चणक and their statements are more or lessrepeated in later medical texts.

(2) The synonym हरिमन्थ for चणक used by सुश्रुत is mentioned by अमर and repeated hy subsequent lexicons.

(3) सुश्रुत calls चणक as a कुधान्य. Its use at a श्राद्ध ceremony was prohibited by *Smṛtis* as stated by विज्ञानेश्वर (c. A. D. 1100). In the *15th century*, however, we find it as fit for a श्राद्ध at a holy place according to गंगावाक्यावलि of विश्वासदेवी.

(4) चणक is not mentioned as food for horses by the अर्थशास्त्र of कौटिल्य, in which यव is prescribed as part of horse regimen. Some time after about A. D. 500 चणक began to be produced in large quantities and was adopted as horse-food as vouched by the horse-treatises of जयदत्त, नकुल, वाग्भट (son of विक्रम) and others. As expressly stated by वाग्भट in his अश्वायुर्वेद (चणकविधि) चणक was used as horse-food below the Vindhya mountains, while यव was used for the horses between the Himālayas and the Vindhyas in his time.

(5) चणक is mentioned in the Jain Canonical works like the ठाणंगसुत्त and the जंबुद्दीवपण्णत्ति as also in later Jaina works in Prakrit like the सुरसुंदरीचरिअ and the सुपासनाहचरिअ of the 12th century and in the विधिप्रपा of जिनप्रभ (A. D. 1307).

(6) After about 1000 A. D. यव fell into back-ground and चणक took its place both as food for horses and men along with wheat and other grainsof antiquity.

In view of the above history of चणक for a period of about 2000 years from Sanskrit and Prakrit sources we are tempted to inquire if चणक was indigenous to India prior to the Christian Era. In this connection I record the following history of चणक (*Cicer Arietinum*) as given

by Watt in his *Dictionary of Economic Products of India*, Vol. II, Calcutta, 1889, pp. 227-275 :—

Habitat — Extensively cultivated as a rabi crop, throughout India, especially in the Northern Provinces.

This is *Cicer* of the Romans, and the parched seed as an article of food with the poor is alluded to by Horace[1] (*Cicer Frictum*). It is also the ***Erebinthos***[2] of Dioscorides.[3] The botanical specific name owes its origin to a not altogether fanciful resemblance of the seed, when first forming in the pod to a ram's head (the *Krios* of the Greeks). The English name "*gram*" is applied to a totally different product in the Madras Presidency, where it denotes the seed of the plant known in the other provinces as *Kurti* (*Dolichos biflorus*) (Duthie and Fuller, *Field and Garden Crops*, I, 33). In Madras *D. Biflorus* is more correctly horse-gram, two forms of *Phaseolus Mungo* being known as " black and green gram" and *Cicer* as " *Bengal gram*." These terms are, however, unknown in other provinces.

History — The Chick-pea was thus known to the Greeks in Homer's time[4] under the name *Erebinthos* and to the Romans as *Cicer* ; and the existence of other widely different names shows that it was early known and *perhaps indigenous to the South-east of Europe*. It is supposed that the Chick-pea has been cultivated in *Egypt* form the very earliest times of the Christian era and was perhaps considered common or unclean like the bean and lentil. But it is most likely that the pea was introduced into ***Egypt*** as well as among the *Jews* from Greece or Italy. Its ***Introduction into India*** is of more early date for there is a Sanskrit name and several other names in modern Indian languages. "The *Western Aryans* (*Pelasgians, Hellenes*) perhaps introduced the plant into *Southern Europe*, where, however, there is some probability that it was also *indigenous*. The *Western Aryans carried it into India*. Its area may have extended from Persia to Greece and the species now exists only in

1. *Horace*, the Roman poet was born on *8th December, B. C. 65* and died on *17th November, B. C. 8*. (Vide pp. 270-271 of *Smaller Classical Dictionary* – Home University Library, London, 1913).

2. Has the Greek word *Erebinthos* for चणक any connection with (हरिमन्थ used by सुश्रुत as a synonym for चणक ?

3. *Dioscorides*, a Greek physician of the *2nd century A. D.* author of an extant work on *Materia Medica*, which for many ages was received as a standard production (*Sm. Clas. Dict.* p. 197).

4. Homer's date is *about 850 B. C.* see p. 268 of *Sm. Clas. Dict.*).

cultivated ground, where we do not know whether it springs from a stock originally wild or from cultivated plants" (*Dc. Orig. Cult. Pl.*).

On the strength of the above remarks we can represent the chronology of चणक or हरिमन्थ prior to the Christian era as follows :—

B. C. 1000-800 — चणक or हरिमन्थ (Greek, *Erebinthos*) in time of Homer.

B. C. 521-485 — *Darius I* ruled Persia--His wars against Greece— "The direct acquaintance of the western nations with *India* dates from the reign of Darius" (Smith : *Sm. Clas. Dict.* p. 280).

B. C. 326 — Expedition of *Alexander the Great* against *India*.

B. C. 305 — Invasion of *Seleukos Nikator* against *Candragupta* Maurya and conclusion of a humiliating peace with *Candragupta* in *B. C. 303*.

B. C. 298-273 — Indian Emperor *Bindusāra* (father of Aśoka the Great) corresponds with *Antiochus Soter* of Syria and gets *figs* and *raisin wine*

B. C. 190 - c. A. D. 20 — Greek occupation of Panjab.

B. C. 65-8 — The Roman poet Horace refers to *Cicer* (चणक) as an article of food with the poor.

B. C. 100 - A. D. 300 — References to चणक in earliest Indian medical texts in Sanskrit of भेल, चरक, सुश्रुत and काश्यप as also in the Jaina Canonical and other Prakrit texts.

Presuming that Southern Europe comprising Greece and Italy was the native habitat of चणक, from which it was taken to Egypt in the earliest times of the Christian era, and further that चणक was taken to India by the Western Aryans (Hellenes) as observed by *De Candolle*, we may tentatively draw the following conclusions:—

(1) If चणक was introduced into India during the reign of Darius I of Persia (*B. C. 521-485*) this introduction must have been possibly through Persia on account of the constant military contact of Persia with Greece at this time.

If चणक was introduced into India after the invasion of Alexander the Great in *B. C. 326*, it would be reasonable to suppose that it was introduced most probably during the Greek occupation of Panjab (*B. C. 190 — c. A. D. 20*). This conclusion is in harmony with the references to चणक in the earliest medical texts of भेल, चरक, सुश्रुत and काश्यप, which appear to

have been composed between c. B. C. 200 and A. D. 300. Foreigners staying in India for more than two centuries may have introduced some plants of their home land into India. Such of these plants as found congenial soil in India became naturalised while others dropped out of Indian cultivation.

(3) It is for Greek and Latin scholars to say if the use of चणक as horse-food was current in Greece and Italy say between B. C. 1000 and A. D. 300. If no evidence can prove this point we may reasonably infer that the use of चणक as horse-food was evolved by Indians some time after about A. D. 500.

25. Studies in the History of Indian Plants — History of Caṇaka (Gram) as food for Horses

Between c. A. D. 800 and 1870 together with some notes on the import of foreign horses into India in ancient and Mediaeval Times*

A friend of mine in the Bombay Agricultural Department, who was interested in the history of several Indian crops, once asked me if I could study the history of *Caṇaka or gram* used by men and horses in India to-day. I promised him to write some paper on *Caṇaka* and its antiquity on the strength of Indian sources. I put a counter-question to my friend: *Can you tell me when Caṇaka or gram came to be used as food for horses?* My friend could not answer this question for want of evidence. I, therefore, propose to record in this paper some evidence which throws some light on this question from the Sanskrit and non-Sanskrit sources available to me.

Yule and Burnell have recorded some useful information on *Gram* or *Caṇaka* in the *Hobson-Jobson*, London, 1903, pp. 392-393 as follows:—

GRAM s. — This word is properly the Portuguese *grão* i. e. 'grain' but it has been specially appropriated to that kind of vetch (*cicer arietinum*, L.) which is the most general grain — (rather pulse —) food forhorsesall over India, called in H. *Chana*. It is the Ital. *cece*, Fr. *pois chiché*, Eng. *chick-pea* or Egypt. *pea* much used in France and S. Europe. This specific application of *grão* is also Portuguese as appears from Bluteau. The word *gram* is in some parts of India applied to other kinds of pulse, and then this application of it is recognized by qualifying it as *Bengal gram*. (See remarks under CALAVANCE). The plant exudes oxalate of potash, and to walk through a gram-field in a wet morning is destructive to shoe-leather. Thenatives collect the acid."

The following dated usages of the word GRAM are then recorded in the *Hobson-Jobson* :—

A. D. 1513 — "And for the *food of these horses* (exported from the Persian Gulf) the factor supplied *grãos*"

— *Albuquerque, Cartas* p. 200
Letter of December 4.

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* Annals (B. O. R. Institute), Vol. XXVI, pp. 89-105.

A. D. 1554 — (Describing Vijayanagar) — " There the *food of horses* and *elephants* consists of *grãos*, rice and other vegetables cooked with *jagra*, which is palm-tree sugar, as there is no *barley in that country*"
— *Castanheda*, Bk. ii, Ch. 16

c. *A. D. 1610* — "They give them also a certain *grain* like lentils"
— *Pyrard de Laval*. Hak. Soc. ii, 79.

A. D. 1702 — "......he confessing before us that their allowance three times a week is but a quart of rice and *gram* together for five men a day, but promises that for the future it shall be rectified"
—In *Wheeler*, ii, 10.

A. D. 1776 — "......Lentils......*gram*.......mustard seed"
— *Halhed's Code*, p. 8 (Pt. ii).

A. D. 1789 — "*gram*, a small kind of pulse, universally used instead of oats" — *Munroe's Narrative*, 85.

A. D. 1793 – "......*gram* which it is not customary to give to bullocks in the Carnatic"
— *Dirrom's Narrative*, 97.

A. D. 1804 – "The *gram* alone for the four regiments with me has in some months cost 50, 000 pagodas"
— *Wellington*, iii, 71.

A. D. 1865 — "But they had come at a wrong season, *gram* was dear, and prices low and the sale concluded in a dead loss"
— *Palgrave's Arabia*, 290.

Gram-fed — adj. Properly the distinctive description of mutton and beef fattened upon *gram* which used to be the pride of Bengal. But applied figuratively to any 'pampered creature.'

In the article on CALAVANCE (*Hobson-Jobson*, p. 145) we are told that the word *Calavance* comes from the Span. *grabanzos*, which De Candolle mentions as Castilian for *'pois chiche'* or *cicer arietinum* (= gram).

The above usages of *gram* as food for horses and men, take its history upto *A. D. 1513*. I shall now trace this history backward from A. D. 1513.

Narahari in his medical glossary called the *Rajanighaṇṭu*[1] composed

1. Quoted on p. 212 of अष्टाङ्गहृदयकोश by K. M. Vaidya, Trichur, 1936.

in Kashmir *c. A. D. 1450*[1] refers to चणक or gram as " वाजिमक्ष " (food for horses) in the following verse :—

" चणस्तु हरिमन्थः स्यात् सुगन्धः कृष्णकञ्चुकः ।
बालभोज्यो वाजिभक्षश्चणकः कञ्चुकी च सः ॥ "

In the two special treatises on horses, which are definitely earlier than Narahari's *Rājanighaṇṭu* we get some references to *Caṇaka* as food for horses. These treatises are (1) अश्ववैद्यक[2] of महासामन्त जयदत्त and (2) अश्वचिकित्सित[3] of नकुल.

References to चणक in the अश्ववैद्यक of जयदत्त are as as follows :—

Page 106 (chap. 11 — भक्ष्यमात्रा विवरणम्)

"चणकाश्चैव माषाश्च ये चान्ये व्रीहयस्तथा ।
यवार्द्धेन प्रयोक्तव्या देशसात्म्येन खादने ॥ ६ ॥ "

Here चणक or gram is definitely prescribed for the regimen of horses along with यव,[4] माष, and व्रीहि. The editor in explaining the above observes :—

"वाजिनां भोजनार्थे यवादीनां एवं मात्रा ; एकदिने यवस्य आढक-चतुष्टयं । चणक-माषव्रीह्यादीनां आढकद्वयं मात्रा । मुद्गस्य च प्रस्थत्रयं । यत्र यत्र भोजने स्नेहव्यवस्था सर्वत्रैव स्नेहस्य कुडवत्रयं लवणस्य कुडवो देयः । "

Then the editor quotes the following verse from अग्निपुराण :—

" चणकव्रीहिमौद्गानि कलायं वापि दापयेत् ।
अहोरात्रेणचार्द्धस्य यवसस्य तुला दश ॥
अष्टौ शुष्कस्य दातव्याश्चतस्रोऽथ माषस्य बुषस्य वा । "

इति अग्निपुराणम् । एवं माषभोजनेऽपि माषस्य ३ प्रस्थाः तैलस्य ३ कुडवाः । लवणस्य च कुडवः ॥ "

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1. *Hobson-Jobson* (p. 476) refers to *Kitchery* (खिचडी) as food for horses :— "*c. 1475* Horses are fed on *pease* ; also on *Kichiris*, boiled with sugar and oil etc. " — *Abdurrazak* in India in 15th Century, p. 10 — Does " pease " here mean *chick-peas* or चणक ?

2. Edited by Umeśa ChandraGupta in *Bibliotheca Indica*, Calcutta, 1886, pages 335. A Glossary of *IndianDrugs* mentioned by Jayadatta, together with their *Bengali*, *Hindi* and *Latin* synonyms, is given by the Editor at the endof this edition. In this glossary अहिफेन or *opium* ismentioned on p. 3.

3. Edited by Umeśa Chandra Gupta, Bib, Indica, 1887. pages 63.

4. हेमचन्द्र (*A. D. 1088-1172*) in his lexicon अभिधानचिन्तामणि (तिर्यक्काण्ड, 236) mentions यव as the favouriteof horses :— " यवो हयप्रियः " (Comm. " हयानां प्रियः हयप्रियः "). He refers to चणक in verse 237 as " चणको हरिमन्थकः " and explains " चणति दन्त्यमानः चणकः " and "हरिभिः मथ्यते हरिमन्थकः" *Amarakośa* mentions वातीक horses and हरिमन्थक (= चणक).

Chapter 13 deals with the treatment of horses in different seasons (सर्व-ऋतु-उपचार). Special attention is given to the food [1] of the horses in these seasons. Among articles of food for the autumn (शरत्) we find मांसयूष (meat-broth) and for the winter (हेमन्त) some wine (वारुणी) also. Wine (मदिरा) is also prescribed for the spring (वसन्त). In *chapter* 22 dealing with treatment of horses for removing fatigue (श्रान्तोपचार) मांसरस flesh juice is prescribed along with यव (barley). In *chapter* 40 dealing with the treatment of horses in fever (ज्वरविवरण) मांसरस-ओदन or riceboiled with flesh juice is prescribed. *Chapter* 66 (रसोनकल्प) prescribes the several uses of garlic in 22 verses Garlic is said to be specially beneficial to old horses (वृद्धेषु च विशेषेण रसोनञ्च प्रदापयेत्). References to चणक as food for horses in the अश्वचिकित्सित of नकुल are as follows :—

Page 39 — *chapter* 11 (ऋतुचर्या) prescribes the use of gram (चणक) in the absence of यव in the following verse :—

" यवोत्थं यवसं दद्यादेकविंशत्यहानि च ।
यवाऽभावेऽश्व चणकान् दद्यादार्द्रतरान् सदा ॥ १० ॥ "

नकुल praises very much the use of यव for feeding the horses as follows :—

" देवतानां यथा विष्णुर्ब्रह्मा वेदविदां वरः ।
नदीनाञ्च यथा गङ्गा तथा श्रेष्ठा यवा हये ॥ १४ ॥ "

यव had been the sustainer of the Aryans from Vedic times and consequently नकुल lavishes so much praise on it. The Vedic Aryans [2] may have used यव for their horses. नकुल and जयदत्त prescribe यव as food forhorses. यवस is prescribed by नकुल for horses. Keith in his *Vedic Index* (Vol. II, p. 117) states that " यवस in the Ṛgveda and later denotes the 'grass' on which animals feed and which is burnt by the forest fire."

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1. Cf. *Ain-i-Akbarī* (A. D. 1590) (Blochmann) Vol. I (1873) — *Ain 49* on Imperial Horse Stables — The regimen includes *peas, grain, flour, sugar, fresh grass, ghee, hay, molasses, salt, brown sugar, green oats* for regular horses.—Regimen for foals includes *milk of Cows.*

2. In the *Vedic Index* (Vol. I — " अश्व. " Keith and Macdonell donot refer to the use of यव for horses. In the *Arthasastra* Kauṭilya refers to यव in the regimen for horses in his chapter on अश्वाध्यक्ष (Book II. chap. 30) p. 147 of Eng. Trans. by Shamsastry, 1929.

"For the best horse (the diet shall be) two *droṇas* of any one of the grains, rice (शालि, व्रीहि), barley (यव), panic seeds (प्रियंगु) soaked or cooked, *mudga* (Phaseolus Mungo), or *Maṣa* (Phaseolus Radiatus ; one *prastha* of oil, 5 *palas* of salt, 50 *palas*, of flesh, one *aḍhaka* of broth (*rasa*), or two *aḍhakas* of curds, 5 *palas* of sugar (Kṣāra), to make their diet relishing, one *prastha* of *sura* liquor or two *prasthas* of milk."

There is no reference to चणक in the *Word-Index* to the *Arthasastra*,

Page 42 — नकुल continues his praise of यव in the following lines :—

" परीक्षार्थी यथा हेम्नः स्नेहस्य च प्रतिक्रिया ।
हयजीवस्य तद्वच्च परीक्षा यवभक्षणे ॥ ३२ ॥
यथा सांयात्रिकः पारं गत्वोच्चैः स्वस्थतां व्रजेत् ।
तद्वत् यवाशनोत्तीर्णाः शुद्धदेहा हयोत्तमाः ॥ ३३ ॥ "

Page 43 — When नकुल wrote his treatise चणक had attained quite an important status in the regimen of the horses. In fact it was considered as the *second best* grain for horses (next to यव) as will be seen from the following verses :—

" यवाऽभावेऽथ चणका धान्यमन्यतमं परम् । "
" एते पुष्टिगुणाः प्रोक्ताश्चणकाहारजा हये । "

In the detailed regimen of horses Kauṭilya mentions numerous items except चणक. I am, therefore, inclined to suggest that चणक was not used as food for horses in Kauṭilya's time. The question now arises as regards the exact time when चणक came to be used as food for horses or " वाजिभक्ष. " It appears that when नकुल wrote his treatise the use of चणक was getting into vogue as food for horses. We must now find references to चणक as food for horses in sources earlier than the time of जयदत्त and नकुल the authors of अश्ववैद्यक and अश्वचिकित्सित respectively. But what is the time of जयदत्त and नकुल ? In connection with this question the following data may be recorded :—

(1) In the Vedic times "Horses from the Indus were of special value as also horses from Sarasvatī (see p. 43 of *Vedic Index* (Keith and Macdonell).

(2) The *Arthaśāstra* of Kauṭilya (p. 148 of Eng. Trans., 1929) mentions the following varieties of horses :—

(i) *Kāmboja*, (ii) *Sindhu*, (iii) *Aratta* and (iv) *Vanāyu*—These are the *best* breeds and (v) *Bāhlika*, (vi) *Pāpeya*, (vii) *Sauvīra* and (viii) *Taitala* are breeds of *middle* quality.

(3) जयदत्त in chap. VI of his अश्ववैद्यक mentions the following kinds of horses :—

Best kinds :—(1) ताजिक Arabianhorses)
(2) पारसिक (Persian)
(3) केकाण or कोङ्काण

other kinds are (4) तुरो जाताः or तुरुष्काः, (5) कीराः, (6) मूरुण्डाः, (7) माण्डजाः. (8) पार्वताः, (9) सैन्धवाः, (10) सारस्वताः, (11) सम्भलाः, (12) कशाः, (13) जटदेशोद्भवाः, (14) प्राग्दक्षिणोद्भवाः, (15) पञ्चदेशोद्भवाः, (16) दाक्षिणात्याः, (17) पूर्वदेशसमुद्भवाः etc,

(4) नकुल in chap. II of his अश्वचिकित्सित mentions the following kinds of horses :—

Best kinds :— (1) ताजिका: (Arabian)
(2) खुरसाणा: (Khorāsan)
(3) उत्तरा: (variant तुषारा:)

Other kinds :— (4) गोजिकाणा:, (5) केकाणा·, (6) प्रौढाहारा: (variant पोषहारा:), (6) माण्डजा:, (8) राजशूला:, (9) गोह्वरा:, (10) साश्वरा, (11) सिन्धुपारा:.

The above list of numerous kinds of horses known to Indians in the time of जयदत्त and नकुल contains a eulogy of ताजिक (Arabian), पारसिक (Persian) and some other foreign breeds of horses like तुरुष्क (Turkish) and खुरसाण (Khorāsān) varieties. This popularity of *Persian, Turkish, Khorāsān, Arabian* and other foreign breeds clearly shows that the importation of foreign horses into India was an established feature of foreign commerce with India at the time when जयदत्त and नकुल composed their treatises on horses.

(5) *Marco Polo* in his *Travels*[1] (A.D. 1298) records some references to horses of different countries as follows :—

Page 28 — *Horses in Turkomania.*[2] Marco Polo observes :—

"There is here an excellent breed of horses which has the appellation of *Turki* and fine mules which are sold at high prices." The Turki breed of horses is esteemed throughout the East for spirit and hardiness. (Compare तुरुष्क horses mentioned by जयदत्त).

Page 50 — *Horses in Persia*

"The country is distinguished for its excellent breed of horses many of which are carried for sale to India and bring high prices not less in general than two hundred livres tournois.[3]

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1. Ed. by Thomas Wright, London, 1901.

2. "Turkomania" then comprised the possessions of the great Seljuk dynasty in Asia Minor, says the Editor, Mr. Wright.

3. Wright observes :—The excellence of the *Persian horses* for which they may perhaps be indebted to the *mixture of the Arabian and Turki* breed, is well known. A detailed account of their qualities is given by Chardin (tom ii, chap. viii, p. 25, 4 to) ; and also by Malcolm (*Hist. of Persia* Vol. ii, p. 516). As the *livre tournois*, in the 14th cent. was at the proportionate value of 25 to 1 livre of the present times, it follows that *the price a which the Persian horses were sold in India* was from *1500 to 2000* rupees."

Cf. Vincent Smith (*History of India*, Oxford, 1914, p. 426)—King Pulakeśin II of the Deccan sent an embassy to Khusru II of Persia in *A. D. 625*. Khusru sent a return embassy to Pulakeśin. A picture of this return embassy is found on an Ajanta fresco painting in Cave No. 1.

"The traders of these parts convey the horses to Kisi, to Ormus, and to other places on the coast of the Indian sea, where they are *purchased by those who carry them to India*. In consequence, however, of the greater heat of that country, they do not last many years, being natives of a temperate climate."

Page 134 — Horses of Tartars fed on grass alone.

The Tartars "are capable of supporting every kind of privation, and when there is a necessity for it can live for a month on the milk of their mares and upon such wild animals as they may chance to catch. Their horses are fed upon grass alone and do not require barley or other grain. (Contrast the Indian regimen for horses consisting of यव, चणक and मांसयूष mentioned in the अश्ववैद्यक and अश्वचिकित्सित of जयदत्त and नकुल and the rich diet for horses given by the *Arthaśāstra* in its chapter on अश्वाध्यक्ष).

"The men are habituated to remain on horse-back during two days and two nights, without dismounting, sleeping in that situation whilst their horses graze."

Page 262 — Horses bred in Karaian[1]

—'The best horses are bred in this province,' (Wright observes :- "This is probably the same breed as the *tangun* or *tanyan* horses of lower Tibet, carried from thence for sale to Hindustan. The people of Būtan informed Major Rennel that they brought their *tanyans* thirty-five days journey to the frontier" (Cf. जयदत्त mentions टङ्कण breed :—"वर्तुलह्रस्वापि ह्रस्वश्च टङ्कण: परिकीर्तित:"

Page 266 — Horses bred in Karazan

"In this province the horses are of a large size and whilst young are carried for *sale to India*. It is the practice to deprive them of one joint of the tail, in order to prevent them from lashing it from side to side, and to occasion its remaining pendant, as the whisking it about, in riding, appears to them a vile habit."[2]

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1. Wright states that *Karain* is generally understood to be north-western part of *yun-nan*. Dr. F. Buchanan (*Asiatic Researches*, Vol. iv. p. 228) writes this word as *Karayn*. He also speaks of *Ka-Kiayn* a wild people on the frontiers of China. जयदत्त mentions a breed of horses of the name केकाण (variants कोंकाण, केकन, केकण.). नकुल also mentions the केकाण breed. Has केकाण or its phonetic variants any connection with *Ka-Kiayn* people on the frontiers of China, mentioned by Buchanan ?

2. Wright states that Karazan is another province of Yun-nan—It appears that the practice of docking the tails of horses by separating one or more of the vertebrae, which has become so common in England existed many hundred years ago amongst the people of Yun-nan, ni the remotest part of China—Chinese prounciation of *Karazan* would be *Ka-la-Shan*.

Page 386 — No horses are bred in Mabbar but they are imported from Arabia.

—"No horses being bred in this country the king and his three royal brothers expend large sums of money annually in the purchase of them from merchants of *Ormus. Diufar, Pecher* and Adem etc."

—"The climate of the province isunfavourable[1] to the race of horses."

—"For food they give them flesh dressed with rice, and other prepared meats, the country not producing any grain besides rice."

Page 420 — Horses exported to India from Kanan or Tana.

—"They likewise take on board a number of horses to be carried for *sale to different parts of India.*"[2]

Page 439 — Horses from Aden exported to India.

"In this port of Aden, likewise, the merchants ship a greater number of *Arabian horses*, which they carry for *sale to all the kingdoms and islands of India*, obtaining high prices for them and making *large profits*" (cf. the statement of जयदत्त and नकुल that ताजिक or *Arabian horse* belongs to the best class of horses.)

Page 443 — Horses exported to India from Kalyati[3] or Kalatu.

"Its harbour is good, and many trading ships arrive there from India .... These likewise carry away freights of *horses, which they sell advantageously in India.*"

It is clear from the foregoing references of *A. D. 1298* about the importation of *Persian, Arabian, Turkish* and other breeds of horses to India that these horses enjoyed a wide popularity in Indian kingdoms and that this Indo—foreign trade in horses was already an established feature

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1. Wrightobserves :—"Evenat the present day there is no breed of horses in the Southern part of the peninsula, and all the cavalry employed there are foreign." जयदत्त also considers the horses bred in the *Eastern* and *Southern* country as अधम or of low quality :—

"अधमाश्चक्रणैः सार्द्ध द्वये प्राग्दक्षिणोद्भवाः"
"दाक्षिणात्यो भवेद्गुणठो योऽधन्यः सर्ववाजिनाम् ॥ १७ ॥
जवहीना महादुष्टाः पूर्ववैरामुसद्भवाः ।"

2. Wrightobserves :—"Horses were carried from the Red Sea, Persian Gulf, and places in their vicinity to the northern parts of India,fromwhence their breed was exported to the southernprovinces. Such at least appears to have been the course of the traffic before it was disturbedby European influence."

3. *Kalayati* is *Kalhat*, on the Coast of Oman, not far to the southward of Muscat.

of the commercial relations of India with other countries. It is on this account that we find a definite mention of पारसिक, तुरुष्क and तार्जिक horses in the treatises on horses by जयदत्त and नकुल.

(6) The Western Cālukya King सोमेश्वर composed his encyclopaedic Sanskrit work मानसोल्लास[1] about *A. D. 1130* i. e. about 168 years earlier than Marco Polo's *Travels.* In this work there is a chapter on वाजिवाह्याली-विनोद or the game of *Indian Polo.*[2] The king should understand the kinds of the best horses for this game brought before him by his officers (तेषां जाती: परीक्षेत देशनामविभेदत:). Someśvara then names the following classes of horses.

Best Horses — (1) काम्बोज, (2) यवन, (3) तेजी, (4) बाल्हीक, (5) श्रातल, (6) ताम्स्वारक, (7) केकाण, (8) पोट्टार, (9) कान्दलेय, (10) योधेय (11) वाजपेयक, (12) वनायुज, (13) पारसीक.

Middle Breeds — (14) तैत्तिल, (15) वत्स, (16) कान्धार, (17) वामतेय, (18) सैन्धव, (19) सावित्र, (20) पार्वतेय, (21) काश्मीर, (22) साम्भतीयक, (23) तेजी, (24) कुलज, (25) नीहार, (26) सारस्वत, (27) तुरुष्क.

Inferior Breeds — (28) मेदक, (29) श्रार्जुनेय, (30) त्रैगर्त, (31) गुर्जर, (32) राजस, (33) श्रावन्त्य, (34) सौराष्ट्र, (35) पारियात्र, (36) सहारक, (37) गुग्धवाट, (38) स्तम्भवाट etc.

It will be seen from the above list that many foreign breeds of horses such as पारसीक, तुरुष्क, ताम्स्वारक, केकाण, बाल्हीक, तेजी etc. were considered best horses about A. D. 1130, when Someśvara ruled in the Deccan. The question of the identification of all these breeds of horses mentioned by सोमेश्वर, as also those mentioned in other works will have to be considered separately as such identification has a direct bearing on the history of foreign commerce with India.

In the वाजिवाह्याली (Indian Polo) chapter refered to above there is no occasion for सोमेश्वर to mention the food for the horses. Accordingly there is no mention of चणक or gram in it[3].

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1. Ed. by G. K. Shrigondekar, G. O. S. Baroda, Vol. II, 1939.

2. Ibid, pp. 211—224—वाजिवाह्याली विनोद—It is worth while comparing the horse-lore in this chapter with that in the horse-treatises of जयदत्त and नकुल. See also Mr. G. K. Shrigondekar's paper on "Indian Polo" in the Proceedings of the Indian Ori. Conference, Allahabad, of 1926.

3. I note here some references to चणक and its uses found in the मानसोल्लास Vol. II (Baroda) 1939.

P. 10—चणकोदन (rice boiled with gram) used for वास्तुपशमन.

P. 115—Chapter on अन्नभोग—चणक to be used in cookery after grinding it in a घरट्ट—हरिमन्थ (= चणक) pulse fried with spices (p. 119).

(*continued on the next page*)

(7) The lexicon *Amarakośa* mentions सैन्धव as the name of a horse (see क्षत्रियवर्ग of Kāṇḍa II of *Amarakośa*, ed. by N.G. Sardesai and H.D. Sharma). It mentions also four breeds of horses as follows :—

P. 185 —"४६—वनायुजाः पारसीकाः काम्बोजा बाह्लिका हयाः". The commentator क्षीरस्वामिन् explains :—"एते जाताः हयविशेषाः । एवं तुरुष्काराद्ययोऽपि"

The *Amarakośa* (between A.D. 500 and 800) refers to the पारसीक or Persian horses. This reference is important as it is one of the earliest references to पारसीक horses we have so far recorded. क्षीरस्वामिन् adds the तुरुष्कार breed to the four breeds mentioned by *Amara*. The date of क्षीरस्वामिन् is about *A.D. 1050*.

(8) The *Bṛhatsaṁhita* of Varāhamihira (c. A. 500) contains a small section on अश्वलक्षण (chap. 66 in 5 verses) but it mentions no breeds of horses in it though it mentions चणक.

(9) Narahari in his medical glossary called राजनिघण्टु of *c.A.D. 1450* refers to the following breeds[1] of horses:—

(1) आरट्ट, (2) सिन्धुज, (3) वनायुज, (4) पारसीक, (5) कांबोज, (6) वाल्हिक, (7) साम्राण, (8) शैफक.

(10) During the Polonnaruva period of the history of Ceylon (A.D. 1017-1235) *horses*, chariots and elephants were used at times in warfare but an army of which they formed part was rather the exception than the rule because there were no convenient routes to follow in a thickly wooded country like Ceylon. The soldiers asa rule travelled on foot and the generals were carried in palanquins with parasols held over themas a sign of their authority.[2] Ceylon's trade with the West began very

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(*continued from the previous page*)

P. 261—Chapter on महिष विनोद—चणक pulse to be given to the buffaloes used for fight.

P. 273—Chapter on मत्स्य विनोद (*Angling*)—Balls of चणक पिष्ट or gram flour with boiled rice to be used for feeding *fishes*.

Pages 283-286—Boar-hunt (वराहमृगया) is described. Boars are very fond of चणक (सूकराः चणकोत्सवाः)—several uses of चणक for tempting the boars before the king hunted them are described.

The foregoing references clearly prove that in *A. D. 1130* the use of चणक or *gram* for feeding *buffaloes* and *boars* was an established practice.

1. Vide p. 35 of अष्टांगहृदयकोष by K. M. Vaidya, Trichur, 1936—राजनिघण्टु is quoted here as follows :—

"आरट्टसिन्धुजवनायुजपारसीक-
काम्बोजवाल्हिकमुखा विविधास्तुरंगाः ।
साम्राणशैफकमुखा अपि देशतः स्युः "

2. Vide p. 91 of *Early History of Ceylon*, by G. C. Mendis, 1938.

early. It is not certain whether the Arabs had dealings with Ceylon before the Christian Era. From the 2nd century A.D to the early part of the 3rd century Greek traders came to Ceylon. There was a revival of trade after Constantine (A.D. 323-337) who made Byzantium the capital of the Roman Empire. Persians, who were Christians of the Nestorian sect also traded with the South-west of India and Ceylon but their trade ceased in the 7th century when Persia was captured by the Muslims. The conquest of Alexandria by the Caliphs in A.D 639 stopped Ceylon's direct trade with Byzantine Empire. Before the end of the 10th century the Arabs established a trading settlement in Colombo.[1] In view of these circumstances it is doubtful if any foreign breeds of horses were imported to Ceylon as they were imported to India from Persia and Arabia say from A.D. 800 onwards.

(11) We have already seen that जयदत्त and नकुल have stated that the breeds of horses from the दाक्षिणात्य and पूर्व (Southern and Eastern) countries or provinces were of the most inferior quality (अधम). During the rule of the Pala dynasty in Bengal (A.D. 750-1200) cavalry was not neglected because they had to fight with Pratiharas who were strong in cavalry. Bengal had no good breed of horses. Horses were imported from foreign countries. It is said in the Mongyr plate of Devapala (A.D. 810-850) that the horses met their old mares in the Kamboja country. Kamboja was reputed for the finest breed in ancient times.[2]

(12) Dr. B.C. Law in his learned article[3] on "Animals in Early Jain and Buddhist Literature" recently published, records the following interesting information[4] about horses gathered from the *Jatakas*:—

"*Horses* — *Sindh* horses are milk-white and thorough-bred (Jātaka Nos. 22, 23, 160, 211, 529, 547, 538). They are white as lilies, swift as the wind and well trained (Ibid, Nos, 544, 266, 547). Horses like to eat *pear* (Ibid, 176). Thorough-bred horses are *fed on parched rice drippings broken*

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1. *Ibid*, pp. 73-74.
2. Vide p. 143 of *Barly History of Bengal* by P. L. Paul, Calcutta, 1939.
3. *Indian Culture*, Vol. XII (July-Sept. 1945), pp. 6-7.
4. Dr. A. D. Pusalker has drawn my attention to the following references to *Horses* in Dr. B. C. Law's *Tribes in Ancient India* (B. O. R. Institute, 1944) :—"Horse-dealers figure prominently amongst the *Gandhara* trades and we learn from the वायुपुराण that the *Gandhara* horses were considered the best of all (ch. 99) (Page 17)—"Horse dealers from northern districts used to bring horses to *Benares* for sale (*Jataka II* p. 287). *Sindh* horses were available in Benares and were used as the royal horses of ceremony (*Jataka II* p. 338) Law p. 112.

meats and grass and red rice-powder (Ibid No. 254). There are big chestnut horses (*Suhanu Jātaka* No. 158). Horses are fierce (Ibid No. 115). When they become rogue they bite quiet horses, but when two rogues meet they lick each other's body (Ibid No. 158). The horse can also imitate men. A horse watching its tame trainer as he trampled on and on in front imitated him and limped too (*Giridanta Jātaka No. 184.*) A thorough-bred war-horse will not bathe in the same place where an ordinary horse took its bath (Ibid No. 25). Horses were employed for drawing state-chariots (Ibid No 22) and cars (Ibid No. 211). Thorough-bred *Sindh* horses sheathed in mail were used for war purposes (Ibid, No. 23; cf. Ibid, No. 547). The *Valāha* and *Sindhu* are the horses of superior breed (*Barhut*. III, Pl. XXVI, fig. 136).

There was a *trade in horses* (*Jātaka* Nos. 4 and 5). There were *valuers* employed by kings to fix the proper price of horses, elephants and the like (Ibid, No. 5). Good horses used to fetch high prices. A high-bred foal was sold at Benares at a high price, separate price was paid for the foal's four feet, for its tail, for its head — six purses of a thousand pieces of money, one for each (Ibid, No. 254). This horse could run at such a high speed that nobody could see it at all. It could run over a pond without getting its hoofs wet, and gallop over lotus leaves without even pushing one of them under water (Ibid, No. 254) —There was a flying horse, white all over and beaked like a crow, with hair like *muñja* grass, possessed of supernatural power, able to fly through the air. From Himālaya it flew through the air until it came to Ceylon. It carried 250 men at a time (*Valāhassa Jātaka* No. 196)."

There is no reference to चणक or gram as food for horses in the above account of ancient Indian horses, though it refers to *rice, meat*[1] and *grass* as food for horses. The *breeds* of horses mentioned in this account are *valāha* and *Sindhu* only. The reference to *trade in horses* is in harmony with the references to such trade recorded by me already in this paper.

(13) In view of the Indo-foreign horse-trade referred to in the Indian and Foreign sources of history the following remarks of Geoffrey

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1. Geoffray Brooke in his book "*The Way of a Man with a horse*" (London, 1929) has dealt with the question of *feeding of sick horses*. He prescribes *eggs, milk, bread, biscuits, beer and wine* for supplying nourishment in a concentrated form. *Beer, Stout* and *Wines* are to be given chiefly to stimulate appetite. A quart of *Beer* or *Stout* and ½ bottle of wine are to be usually given (P. 101). "A horse that does not appear to be thriving may be given a wine-glass-ful of *Cod-liver* oil in thrice the amount in treacle mixed in his feed once a day."

Brooke in his book, *"The Way of a Man with a Horse"* (London. 1929) on the history of the Horse and Horsemanship will be read with peculiar interest :—

Chap I —The Horse.

" Throughout the past ages to the present day we find the horse's many qualities appreciated and turned to the use of man. His courage and endurance have repeatedly been recognized as dominant factors in war and his original use for this purpose dates back to pre-historic times. Archaeological evidence proves this to have been the case in *India, Persia, Assyira*, and *Egypt*, where the horse was bred and trained as a means of conveyance. In *2737 B. C.* the Chinese[1] are known to have made use of cavalry. Amongst other places in the *Bible* we find in the *Book of Kings*, reference made to Solomon's captains, rulers of his chariots and his horsemen. The cavalry of *Alexander the Great*[2] was famous in their days throughout his many campaigns. We know too that the ancient Greeks were highly skilled horsemen and devoted much of their time in equitation. There is both sound advice and practical knowledge to be derived from *Xenophon's treatise on horsemanship*. It is interesting to note that *Herodotus* in his book *Thalia* refers to *Darius* sustaining an accident when hunting on horse-back. We know of course that the *Egyptians, Phoenicians* and *Romans* employed horses in chariots in addition to normal cavalry of those times.

Throughout past centuries to this day the *Arabs* have been recognized as *a nation of horsemen* and it is to these people and their particular breed of horse that we owe the wonderful *Thorough bred of modern times.*

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1. Vide "*Ceremonial Usages of the Chinese*, B.C. 1121, Translated by W.W. Gingell, London, 1852—This Chinese classic (3000 years old) refers to royal *chariots* and *banners* (pp. 18-26). It describes how men of the *Chow* Dynasty (*1121 B.C.*) paid particular regard to carriages and then records in detail the principles of carriage building. It refers to *military carriages*, *small carriages* with one pole and a pair of *horses* on each side of the pole and *large carriages* with two shafts and an ox between them. The small carriages were used for *hunting* and *war* purposes. There were also "*plain carriages*" used as vehicles, drawn by ox or *horse*—This book then lays down the "*regulations by which the people bred horses.*" Horses were of *six kinds*:—(1) *thorough-bred*, (2) *Charger*, (3) *horse of colour*, (4) *roadster*, (5) *hunter*, and (6) *common-bred*. There were officers to look after the Castration of horses, and officers to supervise the harnessing and unharnessing. There were other officers to manage the vicious horses. These observations are evidently about 1000 years older than those in Kautilya's chapter on अश्वाध्यक्ष in the अर्थशास्त्र and about 2000 years earlier than those in the treatises of जयदत्त and नकुल.

2 Alexander's favourite charger *Bucephalus* died at *Jhelum* City of the Hydaspes in N. India after carrying him in all his campaigns. Alexander built at this place a city in memory of his charger after his battle with Porus. (Vide p. 110 of Smith's *Smaller Classical Dictionary*, Everyman's Library, London, 1913).

Among the early *British* at the time of the Roman conquest the *Iceni*[1] held a justly high reputation for the excellence of their horse and their horsemanship.

In mediaeval[2] times good horsemanship was highly esteemed as witness the *English Knights* who won their spurs by gallantryon the field of battle."

The foregoing data gives us a glimpse into the history of Indian interest in horses and the consequent importation of foreign horses into India from very early times. We have seen already that the *Amarakośa* refers to the *Pārasīka* or Persian horses. We know also that Pulakeśin II of the Deccan sent an embassy to Persia in A. D. 625. Are we to suppose that the Persian horses[3] began to be imported to India after A. D. 600 ?

1. *Iceni*—a powerful people in Britain dwelling in the modern counties of Suffolk and Norfolk. Their revolt from the Roman under their heroic queen Boadiceais celebrated in history(*Ibid*, p 277).

2. Mongol horseman underJenghizKhān (died1227 *A. D.*) were celebrated for their conquests— " A Mongol on a single pony will ride from Urga to Kalgan– bythe shortest route 600 miles " (Vide p. 133 of *Unknown Mongolia* by Carruthers, Vol II). Seearticleon *Mongol Army* in *JRAS*, 1943, p. 51.

3. According to *Bombay Gazetteer* [Vol. XIII (Thana) Part II, p. 403]. The Thana coast has taken a leading part in foreigncommerce of WesternIndia in the following periods of history :—

(i) *B C. 2500 — B. C. 500* — There are signs of trade with *Egypt, Phoenicia* and *Babylon.*

(ii) *B. C. 250 — A. D. 250* — There are dealings with, perhaps settlements of, *Greeks* and *Romans.*

(iii) *A. D. 250 — 640* — There are *Persian* alliances and *Persian* settlements.

(iv) *A. D. 700 — 1200*— There are *Mussalaman* trade relations and Mussalman settlements from *Arabia* and Persia.

During the reign ofthe great Noshерwan (*A. D. 531-578*), the relations between *Western India* and *Persia* were extremely close. In the several lists of the articles of trade imported to Indiafromoutside before theperiod of theruleof the *Śīlāhāras* (A. D. 819-1260) I don't find any references to the importof horses. The *Gazetteer* observes (p. 431) :—

" The chief trade in*Animals* was towards the close of the period (1290), a great *import of horses* from the *Persian Gulf* and from *Arabia*. No ships came to Thana without horses and theThana chief was so anxious tosecure them thathe agreed not to trouble the pirates so long as they let him have the horses as hisshare of the plunder. This great *demand for horses seems to have risen from the scare among the Hindu rulers of the Deccan caused by the Mussalman cavalry*. As many as 10,000 horses a year are said to have been imported." Speaking of Mussalman trade (p. 444) the *Gazetteer* observes :— " The constant demand for *horses* kept up a close connectionbetween the *Thana* and *East Arabian* ports and there was a considerabletradewith the Zangibar coast."

According to the *Bombay Gazetteer* the demand for Persian and Arabian horses arose from the scare created by Mussalmān cavalry. If this statement is true to history the horse-trade from Persia and Arabia must have been started some time after the conquest of Sind by the Arabs in *A. D. 712*. The Arabs had made several raids on the coasts of Western India, one of these in *A. D. 637* from Bahrein and Oman in the Persian Gulf and plundered the Konkon coast near Thana (see Elliot and Dowson's *History*, I, pp. 415-416). In view of the above history of the trade in *Persian* and *Arabian* horses I am inclined to think that the treatises on horses by जयदत्त and नकुल viz. the अश्ववैद्यक and अश्वचिकित्सित are *later than* c. *A. D. 800* as thay refer to the पारसीक (Persian) and ताजिक (Arabian) horses among the best breeds of horses. These treatises were probably composed before A. D. 1300 as they show in a remarkable degree the necessity feltby the Hindu Kings[1] of the period 800-1300 A.D. of providing such manuals for the care of their cavalry with a view to combating the Mussalmān trained cavalry like that used by Śhiāb-ud-din against Prithivīrāja of Ajmer in *A. D. 1191*.

If चणक or gram came to be used as food for horses in India say between A. D. 800 and 1300, the period during which the above mentioned treatises on horses were composed, we must investigate whether the use of चणक as food for horses has travelled to India along with the Persian and Arabian horses or otherwise. In connection with this problem it is necessary to locate references to चणक as food for horses in *Persian*, *Arabic* and *Turkish* sources prior to A. D. 800 but I must leave this task to scholars conversant with these sources. I have tried in this paper to record the history of चणक or gram as food for horses *between c. A. D. 800 and 1870*. I propose to deal with the question of the antiquity of चणक on the strength of Sanskrit and non-Sanskrit sources on a subsequent occasion and the present paper is only an off-shoot of the main study pertaining to the history of this important grain on which horses have been fed for more than 1000 years in India.

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1. जयदत्त is called "महासामन्त" in the colophons of the different chapters of his अश्ववैद्यक.

26. Use of Canaka at an Aśvamedha in the Rāmāyaṇa, of Canakāmla in Rasavidyā (c. A. D. 1000 onwards) and Trade in Canaka (about A. D. 1300)*

In my paper[1] on the History of *Caṇaka* (gram) I have recorded references to it from very early medical and other texts such as the *Bhelasamhita, Kaśyapasamhita, Caraka Samhita, Suśruta Samhita, Natyaśastra, Guhyasamajatantra, Paumacariya, Bṛhatsamhita, Gathasaptaśati, Pañcatantra, Ṭhanangasutta, Amarakośa*, etc. Among these references I did not record any reference to *Caṇaka* from the two Epics, the *Mahābhārata* and the *Rāmāyaṇa*, because I had no time to peruse these voluminous texts, having already spent many months in studying the history of *Caṇaka* from varied sources and recording the results of my study in a few papers[2] on this subject. Recently a learned friend, Mr. S.N. Vyas of Jodhpur (Rajaputana), who happened to read my paper on *Caṇaka* in the *Annals* (B.O.R. Institute) directed my attention to the following reference to *Caṇaka* in the *Rāmāyaṇa* (*Uttarakāṇḍa*, chap.91, verse 20, p. 231, of T. R. Krishnacharya's edition, Bombay, 1913) :—

(Rāma asks Lakṣmaṇa to carry out preparations for the Aśvamedha sacrifice in the *Naimiṣa* forest on the bank of river *Gomatī*).

"शतं वाहसहस्राणां तण्डुलानां वपुष्मताम् ।
अयुतं तिलमुद्गानां प्रयात्वग्रेमहाबल ॥ १६ ॥
चणकानां कुलत्थानां माषाणां लवणस्य च ।
अतोनुरूपं स्नेहं च गन्धं संक्षिप्तमेव च ॥ २० ॥"

In my paper on *Caṇaka* published in the *Annals* I have pointed out that the *Agnipurāṇa* (A. D. 800-900) prohibits the use of *Caṇaka* in religious fasts and further Vijñāneśvara (A. D. 1070-1100) prohibits its use at a *Śrāddha*. This prohibition may be contrasted with the recommendation of the *Rāmāyaṇa* that *Caṇaka* should be used along with *tila, taṇḍula* and *mudga* as also *Kulatha, māṣa* at an *aśvamedha* sacrifice. If Southern

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* Adyar Library Bulletin, Vol. XII, part I, pp. 14-23.

1. *vide* pp. 56-92 of *Annals* (B. O. R. Institute), Vol. XXVII (1946).

2. *vide* pp. 89-105 of *Annals*, Vol. XXVI (1946); *Acharya Dhruva Smarak Grantha*, pp. 247-255 (of English Volume) and *Prācyavāṇī* (Calcutta), Jan.-April, 1946, pp. 33-39.

Europe is the native habitat of *Caṇaka*, and if from this habitat, *i.e.* from Greece and Italy, it migrated to India possibly during the Greek occupation of Panjab (B. C. 190 — c. A. D. 20) as suggested by me, it is natural to find it mentioned with favour in the *Uttarakāṇḍa* of the *Rāmāyaṇa* which must have been composed at a time when *Caṇaka* was popular among the sages of India as an edible grain in spite of its foreign origin. As all early medical texts prescribe the use of *Caṇaka* on account of its dietetic value we have to suppose that it became the friend of the common people within a short time from its introduction by the foreign settlers in Indian agriculture. At a later stage say after A. D 300 the *Caṇaka* came to be produced in larger quantities and was consequently included among the articles to be used for the regimen of horse. About A. D. 1000 *Caṇaka* ousted out *Yava* from the regimen of horses though at this time the *Dharmaśāstras*, which had more respect for *Yava* on account of its Vedic antiquity, prohibited *Caṇaka* in important religious ceremonies and ritual. In spite of this prohibition *Caṇaka* became more and more popular and demanded respect, so that by about A. D. 1450 we find it among the grains to be offered at a *Śrāddha* by pilgrims as prescribed in the *Gaṅgāvākyāvalī*. This in short is the story of *Caṇaka* as reconstructed by me on the strength of ancient and mediaeval Sanskrit and non-Sanskrit texts.

In the numerous printed editions of the *Rāmāyaṇa* the verse "चणकानां कुलत्थानां" etc. which I have quoted from Krishnacharya's edition of 1913, has been uniformly retained. I would, however, request our *Rāmāyaṇa* scholars to see if this verse is dropped from any MSS of the *Uttarakāṇḍa*, which might be accessible to them.

Apart from the dietetic value of *Caṇaka* vouched by early medical texts we have in later texts references to the medical use of *Caṇaka* and its products. I may note here a few of these references :—

(1) In the *Caṇakavidhi*(section on *Caṇaka*) found in the MS of *Aśvāyurveda* of Vāgbhaṭa, son of Vikrama (B. O. R. Institute MS *No. 581 of 1899-1915*, folio 54) we find the following description of *Caṇaka* plant at its flowering-time :—

" पुष्पे लवणतिक्ताम्लरसो दोषापकर्षणः "

At present we use the *acid* procured from *Caṇaka* as a house-hold remedy. It is called आंब (*āmb*) in Marathi and is gathered from the *Caṇaka* fields at the flowering time. The above line refers to the three *rasas* or flavours developed in the *Caṇaka* plant *viz* लवण (saltish), तिक्त (bitter or pungent) and अम्ल (sour or acid), at the flowering time. I cannot say how far this

statement is correct but I can vouch for the अम्ल-रस or the acid taste, which was recognized more than a thousand years ago by Indians during the history of *Caṇaka* in India for about 2000 years.

The acid gathered from the *Caṇaka* plants was called चणकाम्ल[1] (= आंब in Marathi) as will be seen from the following references :—

In the *Rasaratnākara* (*Vādikhaṇḍa* ed. by J. K. Shastri, Gondal, 1940) a work on alchemy assigned to the *13th Century* A. D., we get the following references to चणकाम्ल etc. :—

Page 8 —(Upadeśa II) अम्लवर्ग
—"चाङ्गेरी चणकाम्लं तु मातुलुङ्गाम्लवेतसम् ॥ ७ ॥
चिंचानारंगजम्बीरमम्लवर्ग इति स्मृतः ।"

Page 10 —(दिव्यौषधिगण)
—"बदरी लज्जरी लाक्षा चणा वर्तुलपत्रका ॥"

Page 62 —(Upadeśa VII) तारवेध
—"गन्धकं सूक्ष्मचूर्णं तु चणकाम्लेन भावयेत् "

Page 79 —(पारदे अभ्रजारणम्)
—"पूर्वाभ्रं षोडशांशं च मूषायां चणकद्रवैः ॥ ४७ ॥
वालुकाभाण्डमध्ये तु चूल्यां मृद्वग्निना पचेत् ।
अभ्रके चणकद्रावं जीर्णे जीर्णे क्षिपेत्पुनः ॥ ४८ ॥
इत्येव जारयेत्तुल्यं पारदे गगनं क्रमात् ।"

Page 103 —"मर्दयेत्ताम्रखल्वे तु चणकाम्लैर्दिनावधि ।
नवसारैरयःपात्रं लेपयेत्तत्र निक्षिपेत् ॥
पारदं साधितं साभ्रं चणकाम्लं च कांजिकम् ।"

Page 116 —"धान्याम्लैः पेषयेत्तुल्यं तद्द्रवैर्मर्दयेद्दृढम्"

Page 122 —"मर्दयेच्चणकाम्लैश्च सर्वमेतद्दिनावधि ॥ ११ ॥"

Page 125—"मर्दयेच्चणकाम्लेन यामाद् गर्भे द्रवत्यलम् ॥ ५० ॥"

Page 146 —"क्षारत्रयं रामठं च चणकाम्लाम्लवेतसम् ॥ ६१ ॥"

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1. In the *Śabdakalpadruma* (Calcutta, Vol. II), p. 417, we get the following entries about चणकाम्ल:—

चणकाम्लकं (चणकजातमम्लम् । ततः स्वार्थे कन्) चणकलवणम् तस्य गुणाः । अत्यम्लत्वम् । दीपनत्वम् । दन्तहर्षणत्वम् । लवणानुरसत्वम् । रुच्यत्वम् । शूलाजीर्णविबन्धनाशित्वञ्च । इति भावप्रकाशस्य (c. A. D. 1550) पूर्वखण्डे प्रथमे भागे ॥

चणकाम्लवाः (चणकाम्लस्य चणकलवणस्य वारि जलम् ।) चेत्रस्यफलवल्कपत्रशिशिरवारि । इति रत्नावली.

In the *Rasarṇava* (*c.* 12th Century A. D.) edited by Dr. P. C. Ray (*Bib. Indica*, Calcutta, 1910) we get a few references to चणकाम्ल as follows:—

Page 64 —" अम्लवेतसजम्बीर-लुङ्गाम्लचणकाम्लकम् ।
नारङ्गं तिन्तिणीकं च चाङ्गेर्यम्लगणोत्तमाः ॥ ११ ॥"

Page 90 — "चाङ्गेर्यं रामठं च चणकाम्लाम्लवेतसम्"

Page 161 —"रसेन सह देयेति चणकाम्लेन काञ्जिकम् ।"

Dr. P. C. Ray explains the term चणकाम्ल in his *Glossary* (pp. 26-27) at the end of the *Rasarṇava* edition as follows :—

"चणकाम्ल (Acid of *Cicer arietinum*, Linn. Beng. *Gáchh Chhola*, Hindi *Chanaklon*).

In the *Rasaratnasamuccaya* of Vāgbhaṭa, who is assigned by Sir P. C. Ray *"between the 13th and 14th Centuries A. D."* (p. li. of Intro. to *History of Hindu Chemistry*, Vol. I, Calcutta, 1902) we find the following references to चणकाम्ल in Chapter X (page 40 of extracts at the end of *Hist. of Hindu Chemistry*, Vol. I) :—

"चाङ्गेरी चणकाम्लं च अम्लिका कोलदाडिमम् ।
अम्लवेता तिन्तिडीकं च नारङ्गं रसपात्तिका ।
करमर्द तथा चान्यदम्लवर्गः प्रकीर्तितः ॥"

From the references to the "*Caṇakāmla*" (acid of *Cicer arietinum*) in the *Aśvāyurveda* of Vāgbhaṭa, son of Vikrama, the *Rasarṇava* and the *Rasaratnasamuccaya* recorded above it would be reasonable to suppose that this acid was a recognized product from the *Caṇaka* plant in India say from A. D. 900 onwards. It is now necessary to trace references to *Caṇakāmla* prior to A. D. 900 in datable texts.

In another work on alchemy called the *Rasaprakāśasudhākara* (13th Cent. A. D.) ed. by Rājavaidya. J. K. Shāstri, Gondal, 1940 we get a reference to the चणकाम्ल (acid from *Cicer* plant) as follows :—

Page 9—" व्याप्तं हि रसचुक्रेण क्षारेण चणकस्य हि ॥ "

(Here चणकक्षार is possibly identical with चणकाम्ल)

The foregoing references to चणकाम्ल in treatises from 13th Century onwards warrant an inference that *Caṇaka* was grown in the fields in large quantity to enable the alchemists to gather the चणकाम्ल in sufficient quantity for use in their experiments in *rasavidyā*. This inference is corroborated by the following anecdote about a trader in *Caṇaka* narrated by Merutuṅga in his work *Prabandhacintāmaṇi* of **A. D. 1305** :—

***Pages* 106-107 (Tawney's Eng. Trans., Calcutta 1901) :—**

"Then one night the King[1] was looking at a play in the temple of Karṇameru, when a certain ordinary trader, a *seller of gram* placed his hand on his shoulder. The King's mind was astonished at his sportive familiarity but he again and again accepted with his satisfaction the *betel* and *camphor* which the trader offered him, and when the play was dismissed, he found out by means of his attendants the house of the trader and other particulars in the fullest detail, and then, returning to his palace he went to sleep. In the morning the King, after he had performed the duties incumbent on him at the beginning of the day, adorned the assembly pavilion with his presence, giving general audience to the people and summoned the *trader that sold gram* and said to him, "My neck is aching from the weight of the hand that you rested on it last night". But he with prompt readiness of invention, replied, "If your Majesty's shoulder does not feel pain from bearing the weight of the whole earth, even to the urge of ocean, what pain can it feel from the weight of me, a mere life-less man of straw, that subsists by trade ? The King was delighted by this speech of his, which put matters in their true light, and gave him a present. Here ends the *Story of the Seller of Gram*." [2]

The above story of the seller of *Caṇaka* is recorded in a work of A. D. 1305 but it relates to the reign of King Jayasiṁha Siddharāja Solanki of Gujarat (A. D. 1093-1142). If it really relates to this reign we can infer from it easily that the production of *Caṇaka* in Gujarat had grown to such an extent say about A.D. 1100 that there were special traders in this commodity with respectable status like the one in Merutuṅga's story represented as having royal contact.

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1. Jayasiṁha Siddharāja(Gujarat) – *A. D. 1093-1142.*

2. The text of this story as found in the editon of the *Prabandhacintāmaṇi*, ed. by Rāmacandra S'āstri, Bombay, 1888, p. 175 reads as follows :—

Sarga III – "अथान्यदा निशि कर्णमेरुप्रासादे नृपतिर्नाटकं विलोकयन् केनापि चणकविक्रयकारिणा वणिग्मात्रेण स्कन्धेन स्कन्धन्यस्तहस्तेन तल्लीलायितेन विस्मयमानः स भूयो भूयस्तद्दीयमानं सकर्पूरवीटकं परितोषतो गृह्णन् नाटकविसर्जनावसरेऽनुचरैस्तद्गृहादि सम्यगवगम्य तोषमाधाय सुष्वाप । प्रत्यूषे भूपः कृतप्राभातिककृत्यः सर्वावसरेऽलंकृतसभामण्डपस्तं चणकविक्रयकारिणं विपणिनमाकार्य निशि स्कन्धन्यस्तहस्तभारेण ग्रीवा बाधते इत्यभिहिते तत्कालोत्पन्नमतिर्विज्ञपयामास । देव आसमुद्रान्तभूभारे स्कन्धाधिरूढे यदि स्वामिनः न बाधते स्कन्धस्तदा तृणमात्रस्य निर्जीवस्य मम पण्याजीवस्य भारेण स्वामिनः का स्कन्धबाधेति तदीयौचित्यविज्ञपनेन प्रमोदवान्नृपः पारितोषिकं ददौ ॥

इति चणकविक्रयिवणिजः प्रबन्धः ॥"

In the *Aśvāyurveda* of Vāgbhaṭa, son of Vikrama (MS No. 581 of 1899-1915, folio 54) the author states that in the southern quarter below the Vindhya mountains *Caṇaka* was used prominently as horse-food (" हिंदक्षिणायां चणकः प्रशस्तो" and " चणको दक्षिणे विंध्यादुत्तरेण यवाहित: "). This statement is in harmony with the abundant trade in *Caṇaka* (about A.D. 1100), which appears to have been carried on in Gujarat during the reign of King Siddharāja. In my paper on the *Caṇakavidhi* mentioned in the above *Aśvāyurveda* I have suggested that this treatise appears to have been composed sometime before A. D. 1000. This suggestion gets some corroboration from the story of the seller in *Caṇaka* connected with the reign of King Siddharāja, during which the production of *Caṇaka* below the Vindhya range was growing apace, resulting in a well-established trade in this grain with special dealers. Evidently this grain of foreign origin had made its mark in the agricultural economics of India by A. D. 1000, if not some centuries earlier.

Aparārka in his commentary (*c.* A. D. 1100) on the *Yajñavalkyasmṛti* [ed. Ānandāśrama, Sans. Series, Poona, 1903. Vol I. pp. 322-353 (आचाराध्याय) दानप्रकरण] quotes an extract from the *Matsyapurāṇa*. In this extract I find the following verses giving चण (Cicer) a respectable place among the 18 *dhānyas* prescribed for sacred gifts to Brahmins :—

"कौशेयवस्त्रसंयुक्तं तिलद्रोणोपरिन्यसेत् ।
तथाऽष्टादशधान्यानि समन्तात्परिकल्पयेत् ॥
श्यामाकधान्ययव (v.l. तिल) मुद्गतिलाणुमाष-
गोधूमकोद्रवकुलत्थसतीनशिम्बैः ।
अष्टादशं चणकलायमथोष्ट्रराज-
माषप्रियङ्गुसहितं च मयूरमाहुः ॥ "

The statement of *Aśvāyurveda* of Vāgbhaṭa, son of Vikrama, that *Caṇaka* was current to the south of the Vindhya mountain (चणको दक्षिणे विंध्यात्) gets confirmation from the recent discovery in the Kolhapur excavations of charred *gram* seeds at depths attributed to the *Śātavāhana* period (*B. C.* 100—200 *A. D.*) by Dr. M. G. Dikshit,[1] Curator, Deccan

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1. Dr. Dikshit reports in his letter to me, dated 30th September 1947 as follows :—
"The following charred objects have been recovered from various levels in the *Brahmapuri* excavations, Kolhapur, 1945 :

(i) Charred *Grum*—No 796, Sq. IV—Stratum (4) Bahamani Period.
(ii) Charred tamarind seed—No. 2481. Ex. II—Stratum (8) *Śātavāhana Period*.
(iii) Charred *Gram*—No. 2980. Sq. I—Stratum (8) *Śātavāhana* Period.
(iv) Charred *Gram*—No. 2185. Sq. I—Stratum (8) *Śātavāhana Period*.

College Research Institute, Poona. If the dating of the levels at which charred *gram seeds* were found at Brahmapuri (Kolhapur) is correct we may be justified in presuming that *Caṇaka* was either grown in India *between* B. C. 100 *and* A. D 200) or was imported into India from outside as an article of trade either by the Greeks during the Greek occupation of the Panjab between *B. C.* 190 *and A. D.* 20) or by the Romans whose trade with India in the *1st Century* A. D. is now amply proved by the discoveries at *Arikamedu* (near Pondicherry) which was an Indo-Roman trading station on the East coast of India (*vide* article on *Arikamedu* in *Ancient India*, July 1946, pp. 17-124).

(v) Charred *Ragi*—Ex. II—(6) Depth 18 ft.—*S'atavahana Period.*

(vi) Charred *Rice* occurred in a 6 inch layer allover a pavement attributable to the *S'atavahana Period* (100 *B. C.*—200 *A. D.*)

I have to thank Dr. Dikshit for the above information which he sent to me very promptly.

27. Studies in the History of Indian Plants — The use of Caṇaka (gram) as horse-food vouched by five Sanskrit treatises on the Aśvaśāstra*

An accurate history of Indian plants of medical and nutritive value can be written only when the history of each plant has been reconstructed on the strength of Indian and foreign sources. I have accordingly been engaged during the last ten years in gathering materials for such a history and have even published some papers[1] on it. I have recently sent for publication two papers[2] on the history of *Caṇaka* (gram) *as horse-food*. The evidence recorded in these papers shows conclusively that *Caṇaka* as horse-food has a clear history of more than 1000 years as will be seen from the following table which shows at a glance the evidence gathered by me from published and unpublished Sanskrit and non-Sanskrit sources:—

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* *Prācyavāṇī*, January-April 1946, pp. 35-39.

1. These papers are as follows :—
   (1) History of the Fig (Ficus Carica)—from B. C. 1000 to A. D. 1800 (*New Indian Antiquary*), Vol. IV (1941-42), pp. 125-136.
   (-) Antiquity of Jawār (*Holcus Sorghum*) from B. C. 2200 to A. D. 1800 (*B. C. Law Volume*, Part I, pp. 142-158).
   (3) A Contemporary Ms of the Bhojanakutūhala of Raghunātha (Between *A. D. 1650 and 1685*)—Reference to chillies (मिरसाण) in this MS and references to अंजीर, पोपई, अननस, सीताफळ in the बागप्रकरण of Saint Rāmadāsa (*A. D. 1608-1682*)—*Bombay University Journal*, Sept. 1954, pp. 40-45.
   (4) Mahāśāli Variety of Rice in Magadha, *N. I. A.*, March 1944, pp. 265-271.

2. These papers are :—
   (1) History of Caṇaka (gram) as food for horse with some Notes on the History of the Import of Foreign Horses to India (*Annals*-B. O. R. Institute, Vol. XXVI, pp. 89-105.
   (2) Role of Yava and Caṇaka in the Regimen of Indian Horses as disclosed in the Aśvāyurveda of Vāghaṭa, son of Vikrama (*Dr. A. B. Dhruva Commemoration Volume*).

Chronology	Source	Reference to *Caṇaka* as horse-food.
Before A. D. 1000.	*Aśvāyurveda* of Vāgbhaṭa, son of Vikrama.	Does not mention पारसीक and ताजिक horses —Praises यव as food for horses from Himalayas upto विन्ध्य mountain and चणक as important food for horses to the south of the विन्ध्य mountain.
Between 800 and 900 A. D.	*Agnipurāṇa.*	mentions चणक as food for horses along with यव
Before A. D. 1000.	*Aśvacikitsita* of Nakula.	mentions ताजिक (Arabian) and खुरसान (Khorasan) Horses as the *best.* mentions यव as *the best* food for horses and चणक as the *second best* food for horses (यवाभावे चणकाः परं धान्यम्).
Before A. D. 1300.	*Aśvavaidyaka* of Jayadatta	mentions ताजिक (Arabian) and पारसीक (Persian) horses as *the best.* mentions चणक as food for horses along with यव.
c. A. D. 1450	*Rājanighaṇṭu* of Narahari.	mentions चणक as "वाजिमन्थ" or food of horses
A. D. 1513	*Albuquerque, Cartas*	*grãos* (= gram) as food for horses (exported from Persian gulf).
A. D. 1554	*Castanheda*	*graos* (= gram) food for horses of Vijayanagar.
c. A. D. 1610	*Pyrard de Laval*	*grain* (= gram) like lentils.
A. D. 1702	*Wheeler*	*gram*
A. D. 1776	*Halhed's code*	*gram*
A. D. 1789	*Munro's Narrative*	*gram* (used instead of oats)
A. D. 1793	*Dirom's Narrative*	*gram* (not given to bullocks in the Carnatic).
A. D. 1804	*Wellington*	*gram* worth 50.000 pagodas for four regiments.
A. D. 1865	*Palgrave's Arabia*	*gram*

References in the above list from A. D. 1513 onwards are taken by me from *Hobson-Jobson* by Yule and Burnell (London, 1903, p. 393—article on GRAM). References earlier than A. D. 1513 were discovered by me during the course of my study. Since my discovery of the evidence regarding चणक as food for horses from Sanskrit works on Horses I have come across the following additional evidence from another treatise on Horses which I traced in the Government MSS Library at the B. O. R. Institute, Poona. This treatise is called सारसमुच्चय and is a copy made in 1866-68 (*No. 119 of 1866-68*—Bühler's Collection). At the beginning of the MS the copyist has copied the 66th chapter of 5 verses from the बृहत्संहिता of वराहमिहिर (c. A. D. 500) called the तुरंगलक्षणाध्याय. The work सारसमुच्चय follows this chapter.

It begins as follows :—

"श्रीगणेशाय नमः ॥ श्रीमहालक्ष्मीविमलेश्वराभ्यां नमः
येन विज्ञानवता हिमालयतरुच्छायासु विक्रीडितं
यः स्नातो हयमेघशातशिशिरैर्गंगाजलैः पावनैः ।
रेमे यस्तुरंगयूथजनितैर्नानाविधै र्हेषितैः ।
पायाद्वः स तुरंगघोपतनयः श्रीशालिहोत्रो मुनिः ॥१॥
श्रीशालिहोत्रं हयघोषपुत्रं महामुनीन्द्रं प्रणिपत्य तस्मात् ।
श्रीमद्यशःपालसुतं चिकित्साविशारदं बिल्हणमात्मतातम् ॥२॥
श्रीशालिहोत्रादिमुनि-प्रणीत-शास्त्रोदधेः संग्रहणं विधाय ।
विचार्य वस्तूनि च कल्हणेन विरच्यते सारसमुच्चयोऽयम् ॥३॥
प्राकशास्त्रविज्ञान-विमूढबुद्धिः संक्षेपविज्ञानपरो भिषक् यः ।
अस्मत्कृते सारसमुच्चयेऽसौ बुद्धिं करिष्यत्यबुधो बुधोऽपि ॥४॥"

In the several colophons of chapters found in the MS this work सारसमुच्चय on अश्वशास्त्र is described as "बिल्हणात्मजकविकल्हणकृत" i.e. composed by *Kalhaṇa*, son of *Bilhaṇa*. The genealogy of our author as recorded in verse 2 above is as follows :--

यशःपाल, son बिल्हण, son कल्हण (author of सारसमुच्चय).

The date of this कल्हण has not been determined so far as I know but he appears to be different from कल्हण,[1] the author of the celebrated Rājataraṅgiṇī, who was the son of चंपक. This चंपक was minister to King Harṣa of Kashmir (A D. 1089-1101). Our author's father बिल्हण who is called चिकित्साविशारद (verse 2) is not identical with बिल्हण[2] (c. A. D.

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1. See मध्ययुगीनचरित्रकोश by Chitrav Shastri, Poona, 1937, p. 207.

2. Ibid p. 567.

1030-1100), the author of the विक्रमाङ्कदेवचरित, who was son of ज्येष्ठकलश and not of ब्रह्मपाल. Whatever be the date of our Kalhaṇa he appears to have been a Kashmirian physician like his father Bilhaṇa styled as चिकित्साविशारद or expert in medicine. With these remarks about the सारसमुच्चय and its author, I record below the evidence regarding the use of चणक as food for horses given by कल्हण in his work under reference :—

On folios 10 and 11 of *MS No. 119 of 1866-68* (सारसमुच्चय) the author deals with the food to be given to horses and observes :—

—"श्रेष्ठः सुजातश्चणकोऽतिनीलः पुष्पैः फलैः संचित एव देयः ।
योगो न युक्तोमृतवद्ययाश्वो रसादिधातूंस्तनुते च मान्यः ॥५॥
एकांतरेणास्य सुरा प्रदद्यात्सुरीकणासैंधवहिंगुयुक्तम् ।
सुरूलत्त्वणकंधान्मतिमान्प्रभाते दद्यादलंकंपालवणेन युक्तम् ॥६॥
न केवलास्तौ कुरुते मिशीलं सक्षारतैलं सततं प्रदद्यात् ।
स्विन्नो न रुक्षो न च कीटयुक्तो देयो हयानां चणकश्च नित्यम् ॥७॥
न खादनैर्मांसरसैर्न भोजनैर्न स्नेहघासादिभिरेव सेवितैः ।
तथा न पुष्टिर्भवतीह वाजिनां यथा हि सस्यैश्चिता प्रजायते ॥८॥
*हिमालयाद्विन्ध्यभुवस्तु यावद् यवः प्रधानः कथितो मुनीन्द्रैः ।
दिग्दक्षिणायां चणकः प्रशस्तो मकुष्ठकः पश्चिमभूमिभागे ॥९॥"
—"एषां चूर्णमिदं पलद्वयमितं कायाग्निसंदीपनं
वारुण्या चणकेन सैंधवयुतं शूलार्तिनिर्नाशनम् ।
गोमूत्रेण युतं कफक्रमिहरं सिंघाणकाच्छादनं
प्रस्कन्नंश्वयथु सरकमहतं कंडूहरं सर्पिषा ॥"

Verse 9 in the above extract is found in the अश्वायुर्वेद of Vāgbhaṭa without any serious variations, As Kalhaṇa's सारसमुच्चय has summarised and digested some earlier sources on the treatment of horses (as its name indicates) it is possible to suppose that Kalhaṇa may have borrowed this verse from Vāgbhaṭa's work. Even though the possibility of a common

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*In the चणकविधि of अश्वायुर्वेद of वाग्भट, son of विक्रम (B. O. R. Institute *MS No. 581 of 1899-1915*, folios 55-56) this verse is found at the commencement of the चणकविधि section. It reads as follows :—

"हिमालयाद्विन्ध्यभुवस्तु यावत् यवाः प्रधाना कथिता मुनीन्द्रैः ।
दिग्दक्षिणायां चणकः प्रशस्तो मकुष्टकः पश्चिमभूमिभागे : ॥"

There is possibility of कल्हण borrowing this verse from वाग्भट's अश्वायुर्वेद as कल्हण has summarised some earlier sources. In his चणकविधि, वाग्भट again repeats the substance of the above verse as follows :—

"चणको दक्षिणे विन्ध्याद् उत्तरेण यवाहितः"

source from which both Kalhaṇa and Vāgbhaṭa may have borrowed cannot be ruled out we may take it as certain that Kalhaṇa lived at a time, when चणक had assumed an important role in the regimen of horses in India so as to wrest out from its senior यव much of the latter's glory as horse-food par excellence.

It will be seen from the evidence recorded by me so far that the use of चणक as horse-food hasbeen prescribed by (1) the अग्निपुराण (section on अश्वचिकित्सा),(2) the अश्वायुर्वेद of Vāgbhaṭa, son of Vikrama, (3) the सारसमुच्चय (on अश्वशास्त्र) by कल्हण, son of बिल्हण, (4) the अश्वचिकित्सित of Nakula and lastly by (5) the अश्ववैद्यक of Jayadatta. All of these texts are treatises on अश्वशास्त्र composed between c. A D. 700 and 1300, a period when there appears to have been a revival of princely interest in horse-lore consequent upon the effect of the superior Muslimcavalry against which Indian princes had to fight for their very existence. If this suggestion is accepted, it is easy for us to understand why these manualson the care and treatment of horses came to be written. But for these texts, some of which definitely state that they havedrawn their contents from the earlier texts of शालिहोत्र and others it would have been difficult for us to have a peep into the ancient Indian horse-lore, which had become almost misty but whose development is fully attested by Kauṭilya's chapter on अश्वाध्यक्ष in his *Arthaśāstra*. Kingship depended on cavalry in ancient and mediaeval India asobserved by Vāgbhaṭa in the following lines in his अश्वायुर्वेदः—

" अश्वा भवन्ति भुवि यस्य हि तस्य साक्षाद्
आस्ते करप्रणयिनी दयितेव पृथ्वी "

Though horses were the main stay of the old empires in the history of the human race, they have been now replaced by army tanks and in 1945 the *Atom Bomb* reigned supreme in human war-fare. When the scientists conspire Indra trembles in his war-chariot.

28. Studies in the History of Indian Plants — The Role of Yava and Caṇaka (gram) in Regimen of Indian Horses as disclosed in the Aśvāyurveda of Vāgbhaṭa, son of Vikrama*

In my paper[1] on "*Caṇaka (gram) as food for horses*" I tried to prove the history of *Caṇaka* as food for horses in India for about 1000 years. The earliest reference to *Caṇaka* as horse-food was traced by me in the section dealing with *Aśvacikitsita* forming part of the present *Agnipurāṇa* (c. 9th Century A.D.). To corroborate this reference there are references to *Caṇaka* as horse-food in Jayadatta's *Aśvavaidyaka* and Nakula's *Aśvacikitsita*. In fact Nakula recommends *Caṇaka* as second best food for horses, though he praises *Yava* as the best horse-food. Even in the *Agnipurāṇa*, *Caṇaka* appears as an alternative to *Yava*. Since my sending the above paper for publication, I have traced some interesting evidence about *Caṇaka* as horse-food in a MS[2] of a work dealing with horses and their treatment. The chronology of this work has not been determined. The MS of this work in the Government MSS Library at the B.O.R. Institute, Poona, is dated Saṁvat 1701 = A.D. 1645.

The author of this work was **वाग्भट**, son of **विक्रम**, and the name of the work is **अश्वायुर्वेद**. In the Colophons of different chapters of the work, the author's name is given as **वाहड** which is identical with the name **वाग्भट** as recorded by the author in the following verse on folio 4 of the MS :—

"इदानीमस्य शास्त्रस्य क्रमो विक्रमसूनुना ।
बोधार्थं वैद्यपुत्राणां वाग्भटेनाभिधीयते ॥ ३ ॥"

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*Acharya Dhruva Smaraka Grantha, pp. 247 ff

1. Vide Annals (B.O.R. Institute, Poona), Vol. XXVI.

2. MS No. 581 of 1899-1915, folios 196, the Colophon on folio 196 reads :—

"इति श्रीविक्रमात्मजवाहडविरचितेऽश्वायुर्वेदे किशोरचिकित्सा etc. ॥ संवत् १७०१ श्रावण सुदि ११ सोमे लिखितमिदं बुवेहरिकंठसुतदुवेलाड (?) कासुतदुवेकमलाकांततत्पुत्रदुबेसुखदेवेन राजमहलमध्ये स्वपठनार्थं परोपकारार्थं च ॥ etc."

In the first 9 verses, the author tells us that he has based his treatise on the earlier works of **शालिहोत्र** and other sages ("संक्षिप्तमुद्गमुनिसत्तमशालिहोत्रप्रायान्यतो विरचयामि चिकित्सितानि ॥ ४ ॥")

There are several writers of the name वाग्भट in Sanskrit literature. Even in the field of Medicine, we have the following name-sakes[1] of our वाग्भट :—

(1) वाग्भट I (author of अष्टाङ्गसंग्रह) c. A.D. 625.

(2) " II (author of अष्टाङ्गहृदय) 8th or 9th century A.D.

(3) " (author of रसरत्नसमुच्चय) 13thcentury A.D.

The relation of our वाग्भट, the son of विक्रम, to his name-sakes recorded above remains to be investigated. The relation of his अश्वायुर्वेद with the treatises on horses by Jayadatta and Nakula needs also to be proved on definite evidence. For the present, I record below the evidence about the use of यव and चणक as food for horses described in detail by our author in the following extracts of the B.O.R. Institute MS before me :—

(१) यवविधि[2] (folio 54)

तृप्तानामथ वाहानां मदातिकक्कसर्पिषा ।
हेमंते पंच्यतीते स्युर्हिताय हरिता यवाः ॥ ७७ ॥
कुर्वंत्यारोग्यमंगे बलजवजननावर्णलावण्यसंपत्
उत्तोत्साहप्रभावप्रभृतिगुणकृतश्चेन्द्रियाणां मृदुत्वं ।
तन्वाना दीर्घमायुः समुचितसमये स्वामिभिश्चोपनीताः
संजायन्ते हरीणामिह हरितयवाः सेव्यमाना यथावत् ॥ ७८ ॥
प्रग्रंथयो यनावाला (यवानाला) युवानो ग्रंथिसंयुताः ।
उत्पन्नकुसुमाः पश्चाज्जायते गर्भसंयुताः ॥ ७९ ॥
क्षीरमाविर्भवेत्तस्ततो व्यक्तकणा यवाः ।
पक्वास्ते तदनुप्रोक्ताः सप्तधेति मनीषिभिः ॥ ८० ॥
रसैः षड्भिरुपेता स्युः कालजा हरिता यवाः ।
ज्याक्षच्छुका स्वच्छा बालाः प्रकृतिवातुलाः ॥ ८१ ॥
वर्चोभेदकृतोत्यर्थं मूत्रलाः कोष्ठशुद्धये ।
तृप्यायुवत् मासलाः (?) पुष्टि पुष्यंति पुष्टिनाः ॥ ८२ ॥

1. Vide my English Introduction to the *Aṣṭāṅgahṛdaya*, ed. by Hari Shastri Paradkar, N.S. Press, Bombay, 1939, p. 4.

2. यव as man's food from the *Ṛgveda* onwards is celebrated in Sanskrit literature. In Kauṭilya's *Arthaśāstra* it is prescribed for horse regimen along with other ingredients. In later treatises on horses such as जयदत्त's अश्ववैद्यक, नकुल's अश्वचिकित्सित, the शालिहोत्र ascribed to भोज etc., it is much praised as food for *Horses*. Even in the हस्त्यायुर्वेद of पालकाप्य, it is constantly prescribed as food for *elephants*. It found in चणक, a superior rival sometime before A.D. 1000. Even पालकाप्य prescribes चणक for elephants in the following verse :

"[illegible] (स) [illegible] ।
[illegible] ॥ ३६ ॥" *P.* 640 of हस्त्यायुर्वेद (A.S.S. Poona, 1894).

विपाके मधुरा क्षाराः कटुका गर्मितास्ततः ।
जनयंति ततो मांसं श्लेष्मला मूत्रकारिणः ॥ ८३ ॥
सक्षीराश्च रसोपेता माधुर्यगुणसंयुताः ।
पित्तकोपं निहत्यांतर्जायंते धातुवर्द्धनाः ॥ ८४ ॥
पक्का युक्ता रसैः षड्भिः कोष्ठदाहकृतो मताः ।
मेदोमज्जास्थिमांसानि स्थिरीकुर्वंति सेविताः ॥ ८५ ॥
सप्तके प्रथमेत्यर्थं विरेकः कफसेचनं ।
प्रादुर्भवति पानेन वर्जयेदिति तद्बुधः ॥ ८६ ॥
सोढुं न पार्यते तृष्णा ग्रहादूर्ध्वं विधीयते ।
एकाहाच्च पयःपानं यावत्सकुसुमा यवाः ॥ ८७ ॥
अन्यत्र सस्यमश्वानां तथा दृष्टं रसायनं ।
काले संसेव्यमाना हि यथा स्युः क्रमशो यवाः ॥ ८८ ॥
विरेके रक्तमांसास्थिमेदोमज्जादिधातवः ।
यवैर्वृद्धिं प्रयांते क्रमादापूर्वसप्तकान् ॥ ८९ ॥
सप्तयः सप्तकान्सप्तकमेणैव चरंति ये ।
यवानां दुर्लभं तत्र ते परं बलवत्तराः ॥ ९० ॥
यवैर्या बलसंपत्तिः सप्तीनामिह जायते ।
न तां वर्णयितुं शक्ता भिषजः शास्त्रपारगाः ॥ ९१ ॥

इति यवविधिः[1]

हिमालयाद्विंध्यभुवस्तु यावत्
यवाः प्रधाना कथिता मुनीन्द्रैः ।
विरूढतृणायां चणकः प्रशस्तो
मुकुष्टकः पश्चिमभूमिभागैः ॥ ९२ ॥[2]

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1. Cf. the following remarks of Nakula in his अश्वचिकित्सित (*Bib. Ind.* 1887) about यव as food for horses :—

P. 40—"देवतानां यथा विष्णुर्ब्रह्मा वेदविदां वरः । नदीनां च यथा गङ्गा तथा श्रेष्ठा यवा हये ॥"

P. 42—"पटोलादी यथा हेयः स्नेहस्य च प्रतिक्रिया । एवजीवस्य तद्वच परीक्षा यवमश्नुते ॥"

P. 40—"कृताः स्युर्यवभोज्येन सर्वोत्साहस्फुरा नराः । नीरोगास्तुरगाः सर्वे [illegible] यवा ॥"

There is a MS of a work called शालिहोत्र (ascribed to भोजराज in the Colophon) *No. 16 of 1868-69* in the Government MS Library at the B.O.R. Institute, Poona (dated Saṁvat 1864 = A.D. *1808*) in which I find the following verses :—

Folio 6—"यवोत्सवयवसो दद्यादेकाविंशत्यहानि च । यवामाषेऽसौ च मकान् दद्यात्पंचसु [illegible]: ॥ १०१ ॥"

—"परीक्षाग्निर्यथा हेयः स्नेहस्य च प्रतिक्रिया । एवस्यापि च तद्वच परीक्षा यवमश्नुते ॥"

The relation of this भोजविरचित शालिहोत्र to Nakula's अश्वचिकित्सित needs to be examined.

2. Cf. नकुल in अश्वचिकित्सित (*Bib. Ind.* 1887)

P. *39*—"यवाभावेऽसौ चणकान् दद्यादश्वेतराम् सदा ।"

P. 43—"यवाभावेऽसौ चणका [illegible] परम् ।
यवाभावेऽप्यथ दद्यान्मुकुष्टान्सेवनमुत्तमम् ॥
"[illegible]"

यवानां विधिरित्युक्तश्चणकानामथोच्यते ।
चणका पंचधा दृष्टाः सुजाताः हरितः क्रमात् ॥ ९३ ॥
कुसुमादनुकोशस्य प्रादुर्भावोर्द्धसारता ।
सारत्वमथ पाकः स्यादित्यं पंचविधो मतः ॥ ९४ ॥
पुष्पे लवणातिकाम्लरसो दोषापकर्षणः ।
भेदकृच्च तथा जातः कोश [:] स्यान्मधुरो गुरुः ॥ ९५ ॥
तिक्तः स्निग्धोर्ध्वसारश्च शोधनो रक्तवर्धनः ।
रक्तं सारफलं कुर्यान्माधुर्यादथ बृंहणः ॥ ९६ ॥
मेदोमज्जास्थिशुक्राणां वृद्धये स्थिरतां गतः ।
योगेनामृतवद्दृष्टश्चणको मृत्यवेन्यथा ॥ ९७ ॥
चणको दक्षिणे विन्ध्यादुत्तरेण यवाहितः ।
गोधूम [:] शिशिरस्यान्ते माधुर्यात्किल वृद्धये ॥ ९८ ॥
सक्षीरः शोणितप्राणवृद्धये चोष्णवीर्यधृक् ।
वृष्यः स तंदलो भेदः कारीकंठास्य......रः ॥ ९९ ॥
गोधूमो जातमाधूक्ते यवो पि न गुणावहः ।
न्यापन्नरसवीर्यत्वात्कुष्ठरोगाय जायते ॥ १०० ॥
चिकित्सागारसारर्षि राजहंसं मुनीश्वरं ।
विनयावनतो राजा नैषधः पर्यपृच्छत ॥ १०१ ॥
यवमाषादिसस्यानां विधिरुक्तस्त्वयाधुना ।
चणकस्य विधिं तात यथावद्वक्तुमर्हसि ॥ १०२ ॥
एवमुक्तो महाचार्यः शालिहोत्रोभ्यभाषत ।
शृणु नैषध वाहानां गाढविद्रववृद्धये ॥ १०३ ॥
दर्पोद्रेकाय सत्वाय सौहित्याय ..लाय च ।
एक एवास्ति चणको नापरं सस्यमीदृशं ॥ १०४ ॥
तस्मात्तत्समये प्राप्ते निरपायो भिषग्वरः ।
दोषसंशोधनायाथ वह्निसंधुक्षणा [य] च ॥ १०५ ॥
कृमिसंचयनाशाय प्रदद्यादिननवकं ।
कटुचूर्णेन वा मद्यचूर्णारिष्टेन वा क्वचित् ॥ १०६ ॥
वि......लसुनोपेतं तिपुत्पल मुने......।
.........मलयालाभिभावि कुसुमोत्कटो (?) ॥ १०७ ॥
घोरम्पुरगल... ....केन् ।
प्रातरभिस्रिरेद्वम्यः समं लवणमुच्यते ॥ १०८ ॥
अनुपानाय परम दधि......मखमके ।
द्वितीये विजर्षि दद्याद............पयसा ॥ १०९ ॥
..............................पुष्पं वल्वंटकं (?) ।
तृतीये तायं वाय चणकं त्वपराह्णके ॥ ११० ॥

.... तैला प्रशस्यते ।
न तत्र विहितं सर्पिर्मांषमांसादिभोजनं ॥ १११ ॥
अति......तद्धि शूलजीर्णातिसारकृत् ।
......श्यं कोम.......र्थं यवभुविहित (?) च यत् ॥ ११२ ॥
तद्वृद्धिकरसैरेव पोष्याश्वा न तु भोजनैः ।
आतामपूलमंगानां मातुलुंगसमच्छदं ॥ ११३ ॥
ददाति चणकं मूढो योश्वानामतिदुस्तरं ।
करोति शूलमाध्मानं विविधं हन्ति जीवितम् ॥ ११४॥
एवमुक्तेन चणका ये जीर्णचणका हयाः ।
तेऽपि संवत्सरं यावत्पुष्टा हृष्टा सुमेधसः ॥ ११५ ॥
भवंति भारदूराध्वगमने संगरेष्वपाः (?) ।
इति सर्वं समाकर्ण्य पुनः संसेवितो नृपः ॥ ११६ ॥
श्वसति पतति भूमौ गात्रभेभिः सशोफो
व्यथयति द्रवपर्णं मूलमाध्मानतो वैः ।
त्रुतित (?) इति ह कर्णौ मूर्च्छितोश्वो मिषघ्निः
चणकजलपरोगीसानुनेत्रोश्वचिह्नः (?) ॥ ११७ ॥
इति चणकविधिः[1] "

Folio 57 —"युग्माशनं भ्रमहरं कथितं यवानां
वातानुलोमनकरं हि सदा प्रशस्तं ।
कुलत्थमेवायनं तदलाभतोपि
श्रेष्ठं मकुष्टचणकादपि धान्यमन्यत् ॥ ११८ ॥"

Folio 62—"गुरुर्बलप्राणकरः समीरश्लेष्मावहः स्याच्चणको हयानाम् ॥ "

The foregoing long extracts recorded by me from the अश्वायुर्वेद of वाग्भट, son of विक्रम are very important as they throw a flood of light on many points pertaining to the production and consumption of यव, चणक and मकुष्ट[2] in different parts of India. These extracts open a new field of inquiry about the agricultural history of the several edible grains prescribed as food for horses by वाग्भट and other writers on horses, such as शालिहोत्र of

1. Cf. जयदत्त in अश्ववैद्यक (*Bib. Ind.* 1886, Calcutta)
P. 106—[illegible] ।
[illegible] ॥ १ ॥"

2. See p. 411 of अष्टाङ्गहृदयकोश by K. M. Vaidya, Trichur, 1936—Here मकुष्ठ or मकुष्ठक is identified with मटकी (Marathi). According to Nairne (*P. 78* of *Flowering Plants of Western India*, 1894) मटकी is a "doubtful native." He identifies it with *Crotalaria Psoralioides*. On *P. 89*, he mentions *Phaseolus Trinervius*—मटकी which grows in Western India. *Narahari* and *Bhavamisra* call मकुष्ठ as वनमुद्ग.

hoaryantiquity. नकुल, जयदत्त, भोज etc., not to say पालकाप्य and others whose writings on elephant-lore have come down to us.

On the strength of the above extracts and other features of the *Aśvāyurveda* of Vāgbhaṭa, son of Vikrama, I have to make the following tentative suggestions for verification by brother-scholars :—

(1) *Verse 92* in the above extract is of exceptional interest to us as it tells us emphatically the geographical divisions of India in which three prominent *horse-grains* were grown about 1000 years ago :—

(i) Vāgbhaṭa states that from the *Himalayas upto the Vindhya range* of mountains यव was prominently used as horse-food.

(ii) In the *Southern quarter*, presumably below the Vindhya range चणक was used prominently as horse-food.

(iii) In the *Western regions* मकुष्ट was adopted as horse-food. In fact the whole of India was divided into यव-स्थान (above the Vindhyas) and चणक स्थान (below the Vindhyas) as repeated in *verse 98* by our author ("चणको दक्षिणे विन्ध्यादुत्तरेण यवाहितः")

(2) The association of यव with the Vedic Aryans, both as *man's food* and *horse food* continued for more than 2000 years but with the Aryan migration to the southern parts below the Vindhyas, this veteran यव had to fight with चणक, its superior rival that must have been then cultivated in large quantities. On account of its importance for human and animal nourishment, चणक ousted out the veteran यव from the 'menu' of *horse* and *man* and hascontinued its supremacy in this field even to this day. The यव-गोधूम partnership was dissolved more than 1000 years ago and चणक-गोधूम (Gram-Wheat) alliance has governed our kitchens without a break.

(3) The exact date of the *Aśvāyurveda* of Vāgbhaṭa, son of Vikrama, from which I have recorded my data is not known. I may, however, suggest that it appears to be earlier than A.D. 1000. In this connection, I have to point out that in the list[1] of horse-breeds, numbering 54, I don't find the Persian (पारसीक) the Arabian (ताजिक) and the Turkish

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1. This list is found in कुलाध्याय (folios 43-48 of B.O.R. Institute MS of अश्वायुर्वेद of वाग्भट and consists of the following names :—

(1) काम्बोज, (2) वाल्हीक, (3) वनायुज, (4) गांधारकुल, (5) आरट्टकुल, (6) बापेय, (7) त्रैगर्त, (8) आर्ज्जुनेय, (9) सावित्रेय, (10) यौधेय, (11) यावन, (12) ह्रस्व यावन, (13) तौषार, (14) कांदरेय, (15) नार्मदेय, (16) मार्कस्य, (17) छात्स्य, (18) काश्मीर, (19) सकानक, (20) पार्वत्य, (21) उत्तरमाद्रेय, (22) दक्षिणमाद्रेय, (23) अंतर्द्वीपोद्भव, (24) कैकेय, (25) आंबष्ट, (26) वामुंतक, (27) सौवीर, (28) दाटदासेरिक, (29) कुदक, (30) ऐरावत, (31) मालव, (32) मालव, (33) विप्लक, (34) कालिंग, (35) पौड्र, (36) वातायस्य, (37) कौलिंग, (38) कायन, (39) उपमुंसक, (40) सौराष्ट्रक, (41) कारमेय, (42) कोरदेत्र, (43) पांचाल, (44) प्रौढक, (45) कुन्तल, (46) ह्रस्वकुन्तल, (47) हैमवत, (48) पार्वतीय, (49) मलयिक, (50) वामदेय, (51) मौनिक, (52) कवीर, (53) वैतागिरिज, (54) भेदर्म ।

(तुरुष्क) breeds which are mentioned uniformly as the best breeds by जयदत्त नकुल, सोमेश्वर (A.D. 1130) and mentioned even by हेमचन्द्र (A.D. 1088-1172). These writers flourished between c. 800 and 1250, when the foreign horse-trade with India was carried on at the Western Indian ports on a huge scale to meet the growing demand of Indian princes for the best horses to fight with the superior Muslim cavalry. I am, therefore, of opinion that the *Aśvāyurveda* Vāgbhaṭa, son of Vikrama, is possibly earlier than the works of the above writers, which expressly mention the Persian, Arabian and Turkish breeds among the best breeds of horses. The *Arthaśāstra* of Kauṭilya mentions in its chapter on *Aśvādhyakṣa* (p. 148 of *Eng. Trans.* 1929) the breeds of *Kāmbhoja, Sindhu, Araṭṭa* and *Vanāyu* countries as *the best*, those of *Bālhīka, Pāpeya, Sauvīra* and *Taitala* as of *middle quality*, and the rest, ordinary (*avarāḥ*). The *Amarakośa* (Kāṇḍa II, Kṣatra-varga, verse 45) mentions four kinds of horses *viz., Vanāyuja, Pārasīka, Kāmboja* and *Bālhīka*. In this statement, the mention of the *Pārasīka* or the Persian breed is note-worthy; the remaining three are mentioned in Kauṭilya's work and other early texts. If it is suggested that the *Aśvāyurveda* of Vāgbhaṭa, son of Vikrama, is later than the works of Jayadatta, Nakula, Someśvara (c.A.D. 1120) and Hemacandra (A.D. 1088-1172), we have to inquire how it fails to mention in its exhaustive list of 54 breeds of horses—the पारसीक, ताजिक and तुरुष्क horses which are mentioned as best horses by Jayadatta, Nakula and Someśvara. Another omission in Vāgbhaṭa's treatise is that of the names[1] of horses according to colour (वर्ण) such as सेराह, खुङ्गाह, उराह, उकनाह, बोरुलान, etc., which are mentioned by the above four writers. Hemacandra calls these names as "देश्यप्राय" but they appear to me to be foreign terms associated with foreign breeds of horses imported to India between A.D. 800 and 1300. In view of these omissions in the treatise of Vāgbhaṭa, I am inclined to suggest tentatively that this treatise is earlier than c.A.D. 1000. More light on this question can be thrown after a close study of the B.O.R. Institute MS No. *581 of 1899-1915*, which I propose to undertake at some later date.

1. Vide my paperon thesenames contributed to the *Nathuram Premi Commemoration Volume* thatis being published by Dr. V.S. Agrawala and other friends.

29. Some Cultural Gleanings from the Jñānakāṇḍa of the Kāśyapasaṁhitā of the Vaikhānasas*

I have been studying the history of *Caṇaka* (*cicer arietinum*) or gram during the last three years and have published some papers[1] on it based mainly on Indian sources. These papers have already clarified the history of this important plant for the last 2000 years. There is, however, much scope for its study, especially in texts earlier than 1000 A. D. Recently I happened to read one such text published by the S. V. Oriental Institute, Tirupati *viz.* the *Jñānakāṇḍa*[2] of the *Kāśyapa-saṁhitā* of the *Vaikhānasas*, a Vaiṣṇava sect with some literature, much of which is still unpublished. This *Jñānakāṇḍa* contains some references to *Caṇaka*. They are as follows :—

P. 33—Chap. 22—सर्वबलिविधि—सप्तदशधान्यानि. The *Seventeen Grains* are referred to as follows :

> "प्राङ्मुखो भूत्वा अर्घ्यान्तमभ्यर्च्य तेभ्यो हुत्वा शालि–व्रीहि–यव–मुद्ग तिल–माष–प्रियङ्गु–गोधूम–चणक–तिलतिल्व–मसूर–अतसी–कुलत्थ–सर्षप–श्यामाक–षाष्टिक–निष्पावा इत्येते सप्तदशधान्या भवन्ति । एतान् संशोध्य संशुद्धान् प्रोक्ष्य सोममभ्यर्च्य बलिं दद्यात् "

P. 82 —Chap. 58— अङ्कुरार्पणविधि ।

> "कङ्कु–मुद्ग–यव–निष्पाव–प्रियङ्गु–गोधूम–चणक–तिलतिल्व–मसूर–सर्षपाणि धान्यानि सर्वालाभे मुद्गं वा पूर्वमेव यावदङ्कुरदर्शनं तावज्जलेषु निक्षिप्य कांस्यपात्रे धान्यानि आदाय तेषु सोममभ्यर्च्य etc. "

P. 138-139 —Chap. 85—दैविकवासुदेवप्रतिष्ठास्नपनसम्भाराहरणम् ।

> "शालि–व्रीहि–यव–मुद्ग–माष– प्रियङ्गु–गोधूम– चणक– तिलतिल्व–मसूर–सर्षपाणि धान्यानि आहरेत् । अङ्कुरार्पणोक्तधान्यानामङ्कुरांश्च "

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*Adyar Library Bulletin, Vol. pp. 133–140.

1. Vide *Annals* (B. O. R. Institute), Vol. XXVI (1946), pages 89-105 and also *Pracyavani* (प्राच्यवाणी), Calcutta, Vol. III, Nos. 1 and 2 (1946), pages 35-39.

2. *Vaikhanasiya Kasyapa Jñānakāṇḍa* (S. V. Oriental Series No. 1[illegible]). Edited by Pandit R. Parthasarathi, Tirupati, 1948.

" बिल्वपत्र–करवीर–नन्द्यावर्त–पद्म–कुमुदानि पुण्यपुष्पाणि, जाती-
फल–कर्पूर–श्रीवेष्टक–उशीर–मसूर–दमनक–मुद्ग–चणकानां चूर्णम् "

These references found in a treatise dealing with *Vaiṣṇava* ritual and worship amply prove the status attained by *Caṇaka* at the time this *Jñānakāṇḍa* of the *Kāśyapasaṁhitā* of the *Vaikhānasas* was composed. *Caṇaka* (an exotic) seems to have been at this time one of the 17 recognized grains of India with an established status among grains of Indian origin. It appears also to have been considered sacred[1] at this time among the *Vaiṣṇavas* though in some other works on *Dharmaśāstra* its use has been proscribed as I have pointed out in my earlier paper on *Caṇaka*.

As regards the date of the *Vaikhānasīya Kāśyapasaṁhitā* I may record here the views of the editor of its *Jñānakāṇḍa*, Pandit Parthasarathi, as communicated to me in his letter of 7-8-1948. These views are as follows :

(1) This *Kāśyapasaṁhitā* should date immediately after the *Vaikhānasakalpasūtra*.

(2) Ṛṣis,-Bhṛgu, Atri, Marīci and *Kāśyapa* were contemporaries and possibly the disciples of the great *Vaikhānasa*; they produced their works during the life-time or immediately after their Guru.

(3) The earliest mention of the *Vaikhānasakalpasūtra* is found in the *Bodhāyanasūtra*, which is acknowledged to be the earliest of the Sūtras in the Vedic period according to Oriental Scholars.

(4) The *Vaikhānasakalpasūtra* and the *Saṁhitās*, therefore, date *earlier to the Bodhāyana* period.

Bodhāyana, the author of the *Dharmasūtra* and the *Gṛhyasūtra* known by his name is assigned by scholars to about 250 B. C. If this date is correct, the Bodhāyana period referred to by Pandit Parthasarathi would be about the 3rd cent. B. C. It remains to be seen if the *Kāśyapasaṁhitā* of the *Vaikhānasas* in which the references to *Caṇaka* are found is really earlier than 3rd century B. C. The *Jñānakāṇḍa* of the *Vaikhānasīya Kāśyapasaṁhitā* comprises 108 small chapters in simple Sanskrit prose. These chapters contain much objective data of great value to the student of the history of Indian culture. A thorough analysis

1. Compare the use of *Caṇaka* seeds (steeped in water over-night) made by married women in the Deccan at *Haḷadī-Kuṅku* ceremonies especially during the month of *Caitra*.

of these data may clarify the problem of the chronology of this text. In the meanwhile I record below some notes of cultural value gathered during my cursory perusal of it.

(1) The following references to *tāmbūla* show that the practice of giving *tāmbūla* to guests etc., was current among the *Vaiṣṇavas*, though in some works on *dharmaśāstra* its use is proscribed on certain sacred occasions :—

p. 111 —"वस्त्रोद्धृतं शुद्धं शीतलं स्वादु सुगन्धितं वारि पात्रे पानीयं दत्वा आचमनान्ते कर्पूर-जातीफल-एला-लवङ्ग-सहितं सक्रमुकं ताम्बूलं दद्यान्मुख-वासम् ।"

p. 116 —" षड्भिश्चतुर्भिर्वा क्रमुकफलैः तत्त्रिगुणैः द्विगुणैर्वा ताम्बूल-पत्रैर्युक्तो मुख-वासः ।"

p. 120 — "कर्पूरसहितो मुखवासः "

" एलातक्कोल-जातीफल-कर्पूरसहितो मुखवासः "

p. 125 —" जलं नादेयं वस्त्रोद्धृतं मुखवासं क्रमुकताम्बूल-एला लवङ्ग-तक्कोल-कर्पूरयुतम् "

(2) There are frequent references to the *Tulasī*[1] plant, so sacred to the *Vaiṣṇavas* :—

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1. For the history of the *Tulasī* (Holy Basil) see Pandit Ramesh Bedi's monograph on "*Tulasī*" (*Bhāratīya-Dravyaguṇa-Granthamālā*, No. 4), Lahore. 1946. I note some points from this monograph :

(i) The *Carakasaṁhitā* (चि. Chap. 23 and 18) refers to सुरस (=*Tulasī*)—"कृष्णसुरस-मञ्जरी" and "सुरसस्यासितस्य च."

(ii) The *Suśrutasaṁhitā* (सू. Ch. 38, verses 16-17) mentions सुरसा, which Ḍallaṇa (c. A.D. 1100) equates with तुलसी ("तुलसी इति लोके").

(iii) This plant is not mentioned in the *Vedas*, *Āraṇyakas*, *Brāhmaṇas*, Pāṇini's *Aṣṭādhyāyī*.

(iv) Works referring to *Tulasī* are :—

राजनिघण्टु, कैयदेवनिघण्टु, भावप्रकाश, ब्रह्मवैवर्तपुराण (प्रकृतिखण्ड), बृहद्धर्मपुराण, पद्मपुराण (उत्तरखण्ड), प पु. (क्रियायोगसार), शङ्खलिखितस्मृति, गणपाठ (mentions सुरसा), वासुदेवोपनिषद्, अथर्ववेदीयपरिशिष्ट, त्रिपाद्विभूतिमहानारायणो-पनिषद्, रामरहस्योपनिषद्, रामरहस्योपनिषद्, तुलस्युपनिषद्, कार्तिकमाहात्म्य, हरिभक्तिविलास, तुलसीस्तोत्र, रामरहस्योपनिषद्, गौरीतन्त्र (तुलसीमाहात्म्य), स्कन्दपुराण, गरुडपुराण, वायुपुराण, धन्वन्तरिनिघण्टु, राजवल्लभ, योगतरङ्गिणी, योगरत्नाकर, हारीतसंहिता, ब्रह्माण्डपुराण (तुलसीकवच), राघवानुभव, तन्त्रसार, अगस्त्यसंहिता, राजमार्तण्ड, वैद्यमनोरमा, शोढल, भैषज्यरत्नावली, शार्ङ्गधरसंहिता .

p. 5 —"कुशदर्भपलाशापामार्गतुलसीयुतं ... चेत्रम्"

p. 108 —"पत्रेषु तुलसी कृष्णभृङ्गतृणं च श्रेष्ठम् । तयोः सहस्रगुणा तुलसी ।
सर्वपुष्पेभ्यस्तुलसी देवेशस्य प्रियतमा भवति ।"

(3) *Chap.* 57 (pages 80-81) is called "मधूच्छिष्टक्रियाबिम्बनिर्माणक्रियाविधि". It deals with the process of casting metal images of deities by the use of wax-moulds. The *Manasara* edited by Dr. P. K. Acharya has a chapter on this process called "मधूच्छिष्टविधान". The *Caraka Saṁhitā* also refers to this process incidentally (शारीरस्थान) Chap. 3—"यथा—कनकरजतताम्रत्रपुसीसकानि आसिच्यमानानि तेषु तेषु मधूच्छिष्टविग्रहेषु ... ॥ १६ ॥"

(4) *Chap.* 50 (pp. 70-72) deals with "देवालयविमानविधि" Three classes of picture are defined in the following extract :

p. 70—चित्रं चित्रार्धं चित्राभासमिति चित्रं त्रिविधम् । सर्वावयवसंपूर्णं मानोन्मानप्रमाण-लक्षणयुक्तं चित्रम् । तदर्धदर्शनं चित्रार्धम् । पटकुड्यादिलेख्यो लेख्यचित्राभासम्"

(5) *Chap.* 19 (pages 28-29) deals with "चतुर्वर्गसमाराधनदेवतानिर्णय"— Among the deities to be worshipped we find विनायक (p. 29— "...... विनायकं यत्नतः पूजयेत्")

Chap. 27 (दारुसंग्रहणविधि) also refers to विनायक as follows:—(p. 42)— "विघ्नरूपाय विनायकाय......स्वाहा इति व्याहृत्य"

Chap. 74 (मूर्तिमन्त्रक्रम) refers to the worship of विनायक (p. 115) :— "वक्रतुण्डं एकदंष्ट्रं विकटं विनायकमिति वक्रतुण्डं......आवाह्य सम्यगर्चयेत्"

These are evidently references to god *Gaṇeśa*.

(6) *Chap.* 95 contains a reference to पारद in the following line :

p. 160—"धातोरपि पारदमादायैवं समाचरेत्" । पारद in this line means *mercury*. The *Amarakośa* (वैश्यवर्ग०) mentions 4 synonyms for *mercury* as follows:—

"अथ चपलो रसः सूतश्च पारदे ॥ ७७ ॥"

I have not come across any references to पारद in works composed prior to the Christian era.

(7) *Chap.* 12 mentions रोमक in connection with वासुदेव :—

p. 15—"पारसवरोमकमूर्तकिरात......आकीर्णं"

See *Hobson-Jobson* (Yule and Burnell, London, 1903, p. 931) article on *Toolsy* (The holy Basil of the Hindus)—The plant has a kind of sanctity in the Greek Church and a character for sanitary value at least on the shores of the Mediterranean generally.—European notices of *Tulasī* recorded here are dated A D. *1672, 1673, 1842, 1885*. On St. Basil's day women take springs of this plant to be blessed in Church.

(8) *Chap.* 79 mentions 10 *Avatāras* as follows :—

p. 127— " मत्स्यः , कूर्मः , वराहः , नारसिंहः , वामनः , जामदग्न्यरामः , राघवरामः, बलरामः , कृष्णः , कल्की "

(9) *Chap.* 72 deals with flowers to be used for worship as also those to be avoided in worship (ग्राह्याग्राह्यपुष्पविधि).

The following *flowers* are *recommended* for use in worship :—

चम्पक, जाति, कर्णिकार, पद्म, मल्लिका, मालती, कुमुद, रक्तोत्पल, करवीर, नन्द्यावर्त, पलाश, अशोक, तमालकुसुमोत्पलकदिवर्णवकुलामकर्णि(?), कंकणि, केतकि, कुरवक, अतसी, पुन्नाग, अर्जुन, कालनन्दा, कपित्थ, भद्रज, श्वेतिक, औदुम्बर, नन्द, माधवी, नागवृन्द, अल्पायुः, कपाकि, बहुकर्ण, तृण, धातु, ककुभ, दूर्वाङ्कुर, बन्धूक, अर्क, नीलोत्पल, निगुण्डी, उन्मत्तमेषशृङ्गिकर्णांपदिकानि(?), सुवर्चला, ह्रीरी, जया, कोकमाली, द्विकर्णी, सुवर्णमाली, कनक, तुलसी, तापसाङ्कुर, मन्त्रिशोधिनी नाम अङ्कुरः.

Flowers to be avoided :—

जपा, किंशुक, कुसुम्भ, कनक, कोकमाली, चतुर्भुज, सूर्यानन्द, कुरण्ड, मण्डक, ग्रामीली, मुकर्ण.

(10) *Chap.* 91 deals with castes arising from five main castes (जातयः) *viz.* (१) चातुर्वर्णिकाः , (२) अनुलोमाः , (३) प्रतिलोमाः , (४) अन्तरालाः, and (५) व्रात्याः . Some of the castes arising by a mixture of these main castes are as follows :

कुण्ड, गोल, भोज, मणिकार, वलयकार, अश्वपाल, मालवक, पारशव्य, निषाद, अम्बष्ठ, कुम्भकार, नापित, अभिषिक्त(?), शूलिक, मद्गु, अश्वपण्य, आश्विक, चूचुक (काष्ठादिविक्रयक), चक्रकार, कवरीकच, कलायसमीसाभरण, चण्डाल, पुल्कस, पैलक, वैदेहक, चाक्रिक, मागध, तन्तुवाय, आयोगव, पुलिन्द, सूत, रथकार, नाविक (समुद्रलङ्घनजीवी), वेणुक, चर्मकार, मत्स्यबन्ध, सामुद्र (समुद्रपण्यजीव), सूची, ताम्रजीवि, खनक, वस्त्रनिर्णेजक, उद्बन्धक, रजोनिर्णेजक, श्वपच, etc.

Students interested in the history of castes and professions may find this chapter useful as the text explains some of these caste-names.

The foregoing notes of a cultural nature gathered at random from the text of the *Jñānakāṇḍa* before me lead me to conclude that this text cannot be assigned to any date earlier than the Bodhāyana period. On the contrary it appears to be later than the first few centuries of the Christian era as it reveals a very advanced condition of Vaiṣṇava religious worship and ritual.

30. Studies in the History of Indian Plants—

The Mahaśali Variety of Rice in Magadha

(Between A.D. 600 and 1100)*

In the *Aṣṭaṅgahṛdaya*[1] of Vāgbhaṭa II there is a chapter called the "*annasvarūpa-vijñānīya*" devoted to a discussion of dietetics. This chapter has a sub-section called the *Śūka-dhānya-varga*[2] which records the varieties of rice (*Śali*) and their properties. These varieties need to be identified with the varieties of rice now current in India and elsewhere in the interests of the history of Indian agricultural products which is still a desideratum Among these varieties we find a variety called "*mahā-śāli*" and the commentators Aruṇadatta (A. D. 1220) and Hemādri (A. D. 1260) attempt to explain the term in their respective commentaries on the *Aṣṭaṅgahṛdaya* of Vāgbhaṭa II (c. 8th or 9th cent. A. D.). The verse mentioning the rice *maha-śāli* reads as follows :—

" रक्तो महान् स कलमस्तूर्णकः शकुनाहृतः ।
सारामुखो दीर्घशूको रोध्रशूकः सुगन्धिकः ॥ १ ॥ "

Aruṇadatta explains these varieties as follows :—

(P. 84) —"तत्र रक्तशाली — महाशाली सुप्रथितावेव । कलमो मगधादिषु प्रसिद्धः । स एव महातण्डुल इति काश्मीरेषु । " etc.

From these remarks it appears that the Bengali commentator *Aruṇadatta* distinguishes *rakta-śāli* from *mahā-śāli*. The variety called *Kalama* was known under that name in Magadha and other provinces in the 13th Century A. D. We are further informed by Aruṇadatta that in Kāshmīr this very variety *Kalama* was called *mahā-taṇḍula*.

Vāgbhaṭa II gives us the varieties of rice and puts *deva-śāli* at the top and *maha-śāli* next to it in point of their medical properties as will be seen from the following line :—

" महांस्तमनु कलमस्तं चाप्यनु ततः परे ॥ ५ ॥"

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*New Indian Antiquary, Vol. VI, pp. 265-271.

1. Vide *Sūtrasthāna* (*adhyāya* VI), p. 85 of the Edition of the *Aṣṭāṅgahṛdaya* by Hari Śāstri Paradkar with my English Introduction on Vāgbhaṭa II and his Commentators, Nirṇaya Sāgar Press, Bombay, 1939.

2. *Dhānya* is divided into two classes : (1) *Śūka-dhānya*, and (2) *Śimbī-dhānya*. Rice belongs to the *Śūka-dhānya* class.

Aruṇadatta explains :—

" तस्यानु — रक्तशालेः पश्चात् महान् शालिर्वरः । तं च महान्तमनु कलमः महत्त्वांशात् कलमः किञ्चित् ऊनः इत्यर्थः । ततः —अनन्तरम्, परे अन्ये शालयः वरा ज्ञेयाः । "

So we get a graded series :—

Rakta-śāli—Mahā-śāli—Kalama and others. Now Hemādri explains and supports the above series as follows :—

" महाशाल्यादीनां गुणानाह—महांस्तमन्विति । तमनु रक्तशालेर्हीनो महान् । तं चाप्यनु कलमः महतो हीनगुणः " etc.

Hemādri then quotes from *Suśruta* (*Sūtrasthāna*, Chap. 46, 4) ; *Caraka* (*Sūtra.*, Chap. 27, 7) ; *Aṣṭaṅga-Saṁgraha* of Vāgbhaṭa I (Sūtra., Chap. 7) and *Khāraṇādi*, a lost medical treatise. He then concludes as follows :—

" तस्मात्कोऽत्र क्रमः ? उच्यते । इह रक्तशाली शब्देन मृदुमधुरस्निग्धसुरभिशुक्लविशद-स्थूलायतत्वादीनां शोकर्मसद्वादीनां स्वगुणानामुत्कर्ष उपलक्ष्यते । तेषु यथा यथा समुत्कर्षस्ते उत्तमाः । यथा यथा अपकर्षस्ते हीनाः । उपलक्षणानि पुनर्वक्तृविवक्षाभेदाद्भिन्नानि । यानेव गुणान् सुश्रुतखारणादी कलमशब्देनोपलक्षयतः, तानेव चरकवाग्भटौ महाशालीशब्देन । ननु संबन्धं विना नोपलक्षणत्वम्, न च कलमस्य महाशालिगुणैर्महाशालेर्वा कलमगुणैः कदाचित् संबन्धः । मैवम् । यदा कलमो महाशालिक्षेत्रे निष्पद्यते तदा तयोस्तुल्यगुणत्वात् । स्वक्षेत्रजादेव महाशालेः स्वक्षेत्रज एव कलमो हीनः । एवमितरेष्वपि वाच्यम् । तस्मात्सर्वमेव प्रमाणम्, उक्तप्रकारेणाविरोधात् ॥ "

In the quotations given by Hemādri from (1) *Suśruta*, (2) *Caraka*, (3) *Khāraṇādi*, and (4) *Aṣṭaṅga-Saṁgraha* we find a mention of the terms *rakta-śāli*, *mahā-śāli* and *Kalama*. Suśruta uses the term *lohaśāli* for *rakta-śāli* and puts it at the top of his list (" तेषां लोहितकः श्रेष्ठः "). *Caraka*, evidently copied by Vāgbhaṭa II (the author of the *Aṣṭāṅgahṛdaya*) and Vāgbhaṭa I (the author of the *Aṣṭāṅgasaṁgraha*) states :—

" रक्तशालिर्वरस्तेषां तृष्णाघ्नस्त्रिमलापहः ।
महांस्तस्यानु कलमस्तं चाप्यनु ततः परे ॥ "

This gradation of " रक्तशालि — महाशालि — कलम " is exactly identical with that found in the *Aṣṭāṅgahṛdaya*. *Khāraṇādi*, however, follows a different gradation as follows :— " रक्तशालिर्विशिष्टोऽत्र कलमोऽनु महांस्ततः " viz. " रक्तशालि—कलम—महाशालि ".

All these academic discussions of medical scholars right from *Caraka* to *Hemādri* do not give us any idea about the exact size and other particulars of the grains of rice of each variety, which might enable us to identify these varieties mentioned in ancient treatises with the varieties

now current. Then again there are gaps of time between any two of the several medical authors, who give us these varieties as will be seen from their probable chronology noted below :—

(1) *Caraka* — earliest extant medical treatise.
(2) *Suśruta* — earliest extant medical treatise.
(3) *Khāraṇādi* — *Before* A. D. *650* [Vide my papers on this lost medical treatise in *Poona Orientalist*, Vol. IV, pp. 49-62 (1939) and *Annals* (B. O. R. Institute), Vol. XV (1939) pp. 97-102].
(4) *Aṣṭāṅgasaṁgraha* of Vāgbhaṭa I— *about 625* A. D.
(5) *Aṣṭāṅgahṛdaya* of Vāgbhaṭa II — *8th* or *9th Cent.* A. D.
(6) *Aruṇadatta* — *c.* A. D. *1220*.
(7) *Hemādri* — *c.* A. D. *1260*.

In view of the above chronology it is difficult to visualize with any degree of certainty the several varieties of rice mentioned by the earliest treatises of *Caraka* and *Suśruta* and accept *in toto* the explanations, howsoever academic, offered by late commentators of the 13th century A. D. as recorded above. We must, therefore, search for some contemporary historical evidence regarding each of these varieties of rice. In the present paper I shall record such evidence from a Chinese source[1] of the 7th century A.D. with respect to the *Mahāśāli* variety only. This evidence is furnished by the Life of the celebrated Chinese traveller Hiuen-Tsiang written by his pupil. While describing his guru's visit to the Nālanda monastery (in Bihar) he refers to the different branches of learning in which the priests of the monastery were carrying on their studies. He refers to non-Buddhist Śāstras "Such as the *Vedas* and other books, the *Hetuvidyā*, *Śabdavidyā*, the *Cikitsāvidyā*, the works on magic (*Atharvaveda*), the *Sāṅkhya*" etc. He further describes the royal patronage to the priests of the monastery founded "700 years" before his visit as follows :—

"The King of the country respects and honours the priests and has remitted the revenues of about 100 villages for the endowment of the convent. Two hundred householders in these villages, day by day, contribute several hundred *piculs* of *ordinary rice* and several hundred

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1. Vide p. 109 of *Life of Hiuen-Tsiang* by the Shaman Hwui Li with an Introduction containing an account of the Works of I-tsing by Samuel Beal, London, (1911). (Trubner and Co.). Hiuen-Tsiang returned to China after his sojurn in India in the year 645 A D. and died in the year 664 A.D. After this event I-tsing in the year 671 or 672 resolved to visit the Western World (Vide Intro. p. xxv).

catties in weight of *butter* and *milk*. Hence the students here, being abundantly supplied, do not require to ask for the four requisites. This is the source of the purification of their studies to which they have arrived."[1]

Referring to his guru's residence at the Nalanda monastery the pupil of this Chinese traveller states as follows :—

P. 109—"After this he went to reside in a dwelling to the north of the abode of Dharmapāla Bodhisattva, where he was provided with every sort of charitable offering. Each day he received 120 *Jambiras*, 20 *Pin-long-sien* (pūga, *arecanut*), 20 *tan-k'an* (nutmegs), an ounce (*tael*) of *camphor* and a *ching* (peck) of *Mahaśāli* rice This rice is as large as the black bean and when cooked is aromatic and shining, like no other rice at all. *It grows only in Magadha, and no where else* It is offered only to the King or to religious persons of great distinction and hence the name *Kung-ta-jin-mai* (*i.e. rice offered to the great householder*). Every month he was presented with three measures of oil and a daily supply of *butter* and other things according to his need."

The above description of the *Mahaśali* is very important for the history of this variety of rice which is mentioned by the earliest medical treatises of *Caraka* and *Suśruta* but about which we fail to get any descriptive notes of an objective character. Hemādri in his remarks mentions the ideal qualities and characteristics of rice by the adjectives मृदु (soft), मधुर (sweet), स्निग्ध (oily), सुरभि (sweet-smelling or odorous), शुक्ल (white or bright in colour), विशद (shining), स्थूल (big) and आयत (long) and some of these characteristics viz. *bigness*, *aroma*, *shining appearance* etc. are incidentally found recorded in the foregoing Chinese description of the *Mahaśali* rice of *Magadha* eaten by Hiuen-Tsiang during his stay at the Nālanda monastery in the 2nd quarter of the 7th century A.D.

The *Life of Hiuen-Tsiang* in which the description of the *Mahaśāli* rice is recorded by his disciple Shaman Hwui-li is a supplement to the *Record of the Western Countries* and "what is obscure or half told in the one is made clear in the other." Hiuen-Tsiang (=*HT*) was born in the year 600 A.D. He left for India in 629 A.D., where he had his sojourn for *16 years* and returned to China in 645 A.D. In view of this chronology for *HT's Travels in India* the above description of the *Mahaśali* rice recorded by his disciple is a piece of reliable contemporary evidence. The description asserts that the *Mahaśali rice was produced*

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1. *Ibid.*, pp. 112-113—The Editor explains :—1 picul = 133⅓ lbs. ; 1 catty = 160 lbs. and 4 requisites = clothes, food, bedding and medicine.

in Magadha and nowhere else. This statement is wonderfully corroborated by the earliest commentator on *Caraka*, viz. Cakrapāṇidatta of Bengal who flourished 400 years after *HT* i.e. c.A.D. 1060. Cakrapāṇidatta (also called Cakradatta) explains[1] Caraka's remarks on the varieties of rice *Kalama* and *Mahāśali* as follows :—

"यत्तु प्रचरति गौडे तल्लेखिष्यामः । अन्यदेशाप्रसिद्धं च किंचित्।"

......कलमो वेदाग्रहारेषु स्वनामप्रसिद्धः......महाशालिर्मगधे प्रसिद्धः.........
रक्तशालिगुणान महाशालेर्मनागल्पाः एवं तस्यानु कलम इत्यत्रापि वाच्यम्"

Cakradatta maintains without any confusion the distinction between *Kalama* and *Mahaśali* found in *Caraka*, *Suśruta* and *Kharaṇadi* and also informs us that *Mahaśali* was celebrated in Magadha.

Another Bengali commentator viz. Aruṇadatta who flourished about 160 years later than Cakradatta i.e. in A.D. 1220 represents a different tradition about the home of the *Mahaśali* and *Kalama* varieties as we have seen above. In fact he states that *Kalama* was celebrated in Magadha (कलमो मगधादिषु प्रसिद्धः) and further asserts that this very *Kalama* rice was known as *mahataṇḍula* in Kashmir (स एव महातण्डुल इति काश्मीरेषु). If by महातण्डुल Aruṇadatta means महाशालि we have to suppose that in the 13th century the *Kalama* variety of rice had come to be associated with Magadha in the manner of the *Mahaśali* variety and further it was called महातण्डुल which may be a mere paraphrase of the term महाशालि. Whatever be the true history behind the remarks of Aruṇadatta we have reason to believe that Aruṇadatta may not have been very critical and accurate in his remarks about *Kalama* which he distinguishes from रक्तशालि but equates with महातण्डुल of Kashmir current in his days.

Leaving aside the dubious statements of Aruṇadatta we have to note that Hemādri, a junior contemporary of Aruṇadatta evidently distinguishes between कलम and महाशालि and regards कलम as slightly inferior to महाशालि when he states :—

"स्वक्षेत्रजादेव महाशालेः स्वक्षेत्रज एव कलमो हीनः"

This statement of Hemādri (A.D. 1260) the minister of the Yādava Kings of Devagiri (Daulatabad) shows that in the medical circles of South India in the 2nd half of the 13th century, the original distinction and status of *Kalama* and *Mahaśali* as found in *Caraka* and *Suśruta* was recognised.

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1. Vide p. 148 of *Carakasaṁhitā* with Cakradatta's commentary (N. S. Press, Bombay, 1922, *Sūtrasthāna*, Chap. 27).

With a view to clarify our discussion we give below the evidence discussed so far in a tabular form as follows :—

Source	Chronology	Terms used	Where produced	Remarks
चरक[1]	Earliest medical treatise.	(१) महाशालि (२) कलम	Not mentioned.	महाशालि and कलम distinguished
सुश्रुत	Do	Do	Do	Do
सारवादि	Before A.D. 650	(१) महान् (२) कलम	Do	Do
अष्टांगसंग्रह	c.A.D. 625	"महान् स कलमः"	Do	Possibly महान्=कलम
Life of Hiuen-Tsiang	c. A.D. 640	महाशालि	मगध	"(महाशालि) grows only in मगध and nowhere else."
अष्टांगहृदय	8th or 9th cent. A.D.	"महान् स कलमः"	Not mentioned.	Possibly महान्=कलम
चक्रपाणिदत्त	c. A.D. 1060	(१) महाशालि (२) कलम...	— मगध — वेदामहारेषु	"महाशालिर्मगधे प्रसिद्धः" "कलमो वेदामहारेषु स्वनामप्रसिद्धः"
अरुणदत्त	c. A.D. 1220	(१) कलम	— मगध	"कलमो मगधादिषु प्रसिद्धः"
		(२) महाशालि	Not mentioned.	कलम=महातण्डुल of Kashmir
		(३) महातण्डुल	— काश्मीर	("स एव महातण्डुल इति काश्मीरेषु")
हेमाद्रि	c. A.D. 1260	(१) महाशालि	Not mentioned.	महाशालि and कलम distinguished
		(२) कलम	Do	Do

1. *Bhelasamhita* (Calcutta, 1921), p. 127, mentions कलम variety of rice :—
"कलमान् दीर्घवृन्तांश्च रक्तशालीन् सषष्टिकान्". P. 48 —'दीर्घवृन्तो महाशालिः सुगन्धिः शालिसमुष्ट' (महाषालिः ought to be महाशालिः).

It appears from the above table that medical tradition from *Caraka* and *Suśruta* onwards up to A. D. 1300 or so maintained the distinction between the महाशालि variety of rice and the कलम variety. The statement "महान् स कलमः" used by the *Aṣṭāṅgasaṁgraha* (c. A.D. 625) and repeated by the *Aṣṭāṅgahṛdaya* (8th or 9th cent. A.D.) suggests that महाशालि and कलम were possibly losing their distinctive characteristics, thus leading to the merging of the two varieties into one variety, whether called महाशालि or कलम or महातण्डुल. It is, however, certain that a variety called महाशालि possessing eminent qualities of rice so beautifully expressed by Hemādri in the 13th century was a speciality of Magadha, where it was used by the Chinese pilgrim Hiuen-Tsiang (between A. D. 629 and 645) during his stay at the *Nalanda* monastery in Magadha. The fame of Magadha as the home of the महाशालि variety of rice remained intact from c. A. D. 630 to 1060, a period of 430 years as proved by the Chinese evidence of A. D. 640 or so, which gets corroborated by the later statement of the Bengali commentator Cakradatta of c. A. D. 1060.

Though references to the महाशालि variety of rice are rare in the classical Sanskrit literature we find some references to the कलम variety as the following quotations will amply illustrate :—

(1) KALIDĀSA in his *Kumarasambhava* (V, 47) refers to the *Kalama* rice as follows :—

"अहो स्थिरः कोऽपि तवेप्सितो युवा
चिराय कर्णोत्पलशून्यतां गते ।
उपेक्षते यः श्लथलम्बिनोर्जटाः
कपोलदेशे कलमाग्रपिङ्गलाः ॥ ४७ ॥"

Mallinātha explains :— "कलमाः शालिविशेषाः तेषां अग्राणि तद्वत् पिङ्गलाः जटाः उपेक्षते"

Again he refers to *Kalama* rice plants in the *Raghuvaṁśa*[1] (IV, 37) as follows :—

" आपादपद्मप्रणता कलमा इव ते रघुम् ।
फलैः संवर्धयामासुरुत्खातप्रतिरोपिताः ॥ ३७ ॥"

Mallinātha explains :—

" कलमा इव शालिविशेषा इव ।
" शालयः कलमाद्य षष्टिकाद्याश्च पुंस्यमी "
इति अमरः "

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1. *Raghuvaṁśa* (Bombay, 1900) Notes, p. 81.

Mr. M. R. Kale while explaining the above simile observes :—

" The paddy flourished in water and so did the Vaṅgas[1] who were great navigators (नौसाधना:) and Raghu attacked them at a time when the paddies were probably bent low on account of the weight of corn."

(2) BHĀRAVI in his *Kirātārjunīya* (IV, 4) refers to the *Kalama* rice as follows :—

" तुतोष पश्यन्कलमस्य सोऽधिकं
स वारिजे वारिणि रामणीयकम् "

Mr. Kale observes :—

" The paddy fields are covered over with water during the rains and often abound in lotuses."

Mr. Apte in his *Dictionary* explains कलम[2] as "Rice which is sown in May-June and ripens in December-January." The *Uṇādi Sūtras* (84) refer to *Kalama* rice.

In this way it is possible to know some details about the *Kalama* rice from early Sanskrit sources, not to say the Jaina and the Buddhist ones. We must, however, leave this subject for a further study.

(3) In the *Subhāṣitaratnabhāṇḍāgāra* (N. S. Press, Bombay, 1900) we get some verses, though anonymous about शालि and कलम as follows :—

Page 254 — शालिः

" शस्यासंततिसंनिरुद्धनभसो भूयांस एवावनौ
विद्यन्ते तरवः फलैरविकलैरार्तिच्छिदः प्राणिनाम् ।
किंतु द्विःसदलैरलंकृततनोः शालेःस्तुमस्तुङ्गतां
दत्त्वा येन निजं शिरः सुकृतिना को नाम न प्रीणितः ॥ १७६ ॥ "

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1. Though Kālidāsa here compares the Vaṅgas (or people of Eastern Bengal) to *Kalama* rice plants, it is difficult to conclude from this simile whether he looked upon मगध (South Bihar) or वङ्ग as the original home of the *Kalama* rice plant. It is also possible to infer that the *Kalama* rice may have been cultivated in Vaṅga, though the *Life of Hiuen-Tsiang* contains the explicit statement that the महाशालि rice " grows in *Magadha* and nowhere else. " Presuming the early distinction between महाशालि and कलम to be true to history we may suppose that—

(1) the महाशालि rice was grown specially in मगध and (2) the कलम rice was grown in वङ्ग or Eastern Bengal in Kālidāsa's time. This presumption would be in perfect harmony with the statement in the *Life* of *H. T.* that महाशालि rice was grown only in मगध.

2. According to *Paiasaddamahaṇṇava* by Hargovinda Das (1923-28) p. 289, the word कलम is used in the following Prakrit works :—

(१) उवासगदसाओ, (२) जंबुद्दीवपण्णत्ति, (३) नायाधम्मकहाओ

Page 255 —कलमाः

"कलमाः पाकविनम्रा मूलतलाघ्रातसुरभिकह्लाराः ।
पवनाकम्पितशिरसः प्रायः कुर्वन्ति परिमलश्लाघाम् ॥ १६६ ॥
यस्यानवेहि कलमा न्नलमाहृतानाम्
येषां प्रचण्डमुसलैरवदाततैव ।
स्नेहं विमुच्य सहसा खलतां प्रयान्ति
ये स्वल्पपीडनवशान्न वयं तिलास्ते ॥ १६७ ॥ "

In the article on *Rice* in the *Hobson-Jobson* (by Yule and Burnell, London, 1903, pp. 763-764) we are told that the knowledge of *Rice* came to Greece from the expedition of Alexander. The references to *rice between* B. C. *320 and* A. D. *90* recorded in this article are as follows :—

(1) B. C. *320-300* —*Theophrastus* (earliest Greek references to *rice* almost during the life-time of Alexander).

(2) B. C. *c. 20* — *Strabo* quotes Aristobulus, a companion of Alexander's expedition in his description of rice plant and its cultivation.

(3) B. C. *300* — *Athanaseus* iv. §39 — Megasthenes is quoted regarding the use of rice by Indians.

(4) A. D. *80-90*—*Periplus* §41—Peninsulaof Guzerat (*syrastrēnē*) produces *wheat, rice*, sessamin *oil, butter* and *cotton*and piecegoods made from it.

In all these early foreign references to rice no mention of any variety of rice is made in the manner of our early medical texts like *Caraka* and *Suśruta*. We must, therefore, study all the varieties of rice mentioned in our earliest medical and other literature and try to reconstruct their history with a view to clarify our knowledge of the history[1] of Indian economic products which is at present in a nebulous condition.

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1. Vide pp. 127-131 of *Arthasastra* (Trans. 1929) Chap. XXIV. Superintendent of Agriculture. Much valuable informationregarding such history is recorded by Kauṭilya. He states that शालि and व्रीहि are to be sown at the commencement of the rainy season. On p. 101 शालि and व्रीहि are again mentioned. On p. 102 we are told that one meal of an *Arya* should consist of one *prastha* of rice, pureand unsplit, one-fourth *prastha* of *supa* andclarified butter or oil equal to one-fourth part of *supa*—Dogs are to be given one *prastha* of cooked rice—व्रीहि increases four times when cooked, while शालि increases five times when cooked.—p. 147—शालि and व्रीहि are given to best horses and to elephants (p, 152).

31. Studies in the History of Indian Plants

Antiquity of Jawār or Jondhḷā (Holcus Sorghum)

(From B.C. 2200 to A.D. 1850)*

In July 1941, I published a short paper[1] on the *History of the Fig* (*Ficus Carica*) recording its history from *c.* B.C. 1000 to A.D. 1800. My main object in preparing this paper was to record the history of this plant from foreign and Indian sources and to point out how it was gradually assimilated by the Indian *Materia Medica* like many other plants of foreign origin. This paper of mine has received better appreciation[2] from Sanskrit scholars, botanists and medical men than I expected. Dr. Birbal Sahni, F.R.S., Dean of the Faculty of Science, Lucknow University, directed my attention to a recent book on the *History of Plant Sciences*[3] by Howard S. Reed which has two chapters "on the history of the plant lore of the ancients, where Egypt and Assyria, Greece and Rome, China and early America are all adequately treated" but "one looks in vain for a bare mention of ancient India which was certainly well abreast of the times and gave much that the West has assimilated, though not always gracefully acknowledged." Dr. Sahni rightly observes that the Retrogressive Period (Chap. IV of Reed's book) was retrogressive only so far as the occidental nations were concerned.

The study of Indian culture in all its aspects of which the history of Indian plants is but one aspect has not yet been properly carried out

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* Dr. B.C. Law Volume, part I, pp. 142-158.

1. *Vide*, pp. 125-136 of *New Indian Antiquary* Vol. IV (1941–42).

2. Dr. P. M. Mehta, M.D., M.S., Chief Medical Officer, Jamnagar State, who is deeply interested in Indian Botany and Ayurvedic System of Medicine suggested that I should take up a systematic study of other plants of medical and nutritive value. His constant correspondence with me during the last 3 years has been responsible for maintaining my interest in the history of Indian Medicine. I am thankful to him for supplying me extracts from works on medicine and botany not easily accessible to me in local libraries.

3. *Vide*, p. 369 of *Current Science*, 1942, XI, No. 9 where Dr. Sahni's interesting review of Reed's book appears. A copy of this review was kindly sent to me by Dr. Sahni, who wrote to me on 12th January 1943 :—"I have read with much interest your Notes on the *History of the Fig* (*Ficus Carica*). I think you would be doing a service to Indian Botany if similarly you were to work out the history of our knowledge of other common Indian plants of medicinal or nutritive value. Our own ignorance concerning this subject is colossal and we can scarcely blame the western writers if they ignore the ancient Hindu knowledge of the plant sciences."

in spite of the wealth of material in Jain, Brahmanical, Buddhist and foreign sources in contact with India from remote antiquity. It is, therefore, no fault of the Western writers if they ignore the ancient Hindu knowledge of our sciences as reflected in the literary and other sources now available for study. In view of the unsatisfactory character of the history of Indian plant sciences as pointed out by Dr. Sahni I have thought it advisable to note down and record as many facts about the history of different Indian plants as I can gather during the course of my other studies pertaining to the history of Indian Culture in all its manifold aspects. As one such effort in the field of this history I shall deal with the antiquity of *Holcus Sorghum* (*Jawār* or *Jondhḷā*) which is supposed to be the earliest of the wild plants to be domesticated according to SWANSON and LAUDE,[1] who record the following points regarding its antiquity :—

(*i*) *Holcus Sorghum* is indigenous of Equatorial Africa and Asia.

(*ii*) Evidence of its existence about 2200 B.C. is furnished by one of the Egyptian tombs of this date.

(*iii*) In the *Bible* (Book of Ezekiel) the word *dochan* occurs. It is translated by the word *millet* but it is possible that it signifies the *Sorghum*.

(*iv*) The cultivation of *Sorghum* in Asia, particularly in India is very old.

(*v*) *Sorghum* was grown as early as *3rd Century* A.D. *in China*, where it was probably introduced.

Watt in his *Dictionary of Economic Products of India*[2] devotes some space to the history of *Sorghum*. I note below some points from his remarks :—

(1) Some of the cultivated *Sorghums* had been developed in India.

(2) Sir Water Elliot pointed out that the most general Sanskrit name for the crop, *yavana* denotes in other connections a Greek, Muhammadan or stranger while its Persian name *juār-i-hindi* shows that it reached Persia, at least from India.

(3) De Candolle lays a certain amount of stress on "the absence of a Sanskrit name as rendering the Indian origin doubtful."

1. Vide *Bulletin No. 266* (1934) by A. F. SWANSON and LAUDE—"*Varieties of Sorghum in Kansas*" (Kansas State College of Agriculture and Allied Science, U. S. A.) This *Bulletin* was not accessible to me but the pertinent information was supplied to me by my brother Mr. R. B. Gode, M.Sc. Assistant Investigator, Govt. Dry Farming Scheme (1933 to 1943) and now Bio-Chemist to Govt. for the Bombay Province.

2. Vide pp. 291–292 of Vol. VI, Part III, London and Calcutta, 1893.

(4) Some writers have given *Zūrna* or *Zūra* as the Sanskrit for this grain, but if that be the case, neither *Dhūra* or *Zūra* has given origin to any of the Indian names. *Zūra* or *Zūrna* is moreover, clearly derived from the Arabic *Dhūra*. The Arabic word has on the other hand passed into the Egyptian and perhaps also the Hebrew, so that it seems almost justifiable to say that the aboriginal people of India knew of and perhaps cultivated their indigenous *Sorghum* long anterior to the Āryan invasion. Indeed, it may be assumed that the Sanskrit people first learned of this grain in India, but gave themselves very little concern regarding it. But, indeed, the absence of any allusion to it in the classic literature of the Sanskrit people can hardly be advanced as positive proof that it was unknown to them. The religious associations of the grain, the observances of cultivation and the multiplicity of forms of the crop, all point, to an antiquity quite as great as can be shown for most other articles of the humbler phases of life. The absence of any historic indications of an ancient importation and the presence in India of an abundent wild species that affords a large conspicuous edible grain seem, when taken in conjunction with the argument already advanced, "*conclusive evidence in support of the opinion that many of the forms of this millet are beyond doubt natives of India.*"

(5) "SMITH (*History of Bible Plants*, p. 214) has endeavoured to show that the stalks of this millet were very probably the reed of *St. Mathew* and that the spikelets on its top were very likely the hyssop of *St. John* mentioned at the crucifixion. The hyssop (*Esob* of the Hebrews) of *Moses* was a word used to denote any common article in the form of a broom of a material suitable for that purpose. If this view be accepted, the cultivation of *Sorghum* in Palestine may be regarded as very ancient."[1]

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1. *Ibid*. p. 295. These remarks read in conjunction with the existence of *Sorghum* in an Egyptian tomb of 2200 B.C. may tend to confirm the belief that the Sorghum has very great antiquity say of more than 5000 years and if the theory of its importation to India from Africa is accepted we have to suppose that this importation took place in remote antiquity prior to the Christian Era. The evidence recorded in this paper shows its existence on Indian soil for the last 2000 years. It is for the students of the pre-historic culture of India to investigate the exact period of the suggested importation. In the meanwhile we may accept Watt's conclusion that the *Sorghum* and its varieties are natives of India.

The foregoing scholarly collection of facts and views bearing on the history of the *Sorghum*, though illuminating, is not conclusive so far as the antiquity of *Sorghum* in India is concerned. It is the purpose of this paper to record some useful data bearing on this antiquity so that the whole problem should be clarified by the application of the chronological method of recording textual evidence adopted by me in my present study of the problem. In recording my evidence I shall follow the method of proceeding from the present to the past so that readers may know how far I have penetrated the mist of antiquity gathered round this important grain the *Sorghum*, the sustainer of life in different parts of India even in its worst quality now rationed out to millions of my countrymen consequent upon the exigencies of the present world-war.

JOHN GRAHAM published in 1839 his book on *Plants growing in Bombay and its vicinity* in which he refers to *Jowaree* and *Bajree* as follows :—

Page 237 —*Holcus* (From *Helko* to draw in allusion to the supposed emollient properties of a grass to which this name was given.

Page 238 —*Holcus Shicatus* —*Bajree*—extensively cultivated and forms a very important article of food along *Jondhala*.

Holcus Sorghum—JOWAREE—Jondla, the great millet a well-known cerealia. The straw called *Kurbee* is rackoned very nourishing for cattle and is a substitute for forage for horses, when grass is not obtainable.

EDWARD MOOR, one of the founders of the Royal Asiatic Society London, served with the Maratha army against Tipoo Sultan in A.D. 1790-91. In his *Narrative of the Operations* etc. published in London in 1794 he refers to *Jawary* as follows :—

Page 278—In Chapter XXI Moor gives historical and descriptive particulars of Canara and the Canarese. In this connection he states :—

"We learned that in times of plenty, the ordinary price[1] of provisions was in this proportion : a *bullock load of jowary for a rupee* or four sheep or twenty fowls : sheep we have frequently picked at half a rupee each. A *bullock load is eighty pucku seer* which at a liberal allowance will serve a family of six persons a month." On *page 505* Moor explains *Jawary* as "A grain called in America and the West Indies *Guinea Corn*."

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1. *Jawari* is selling at *4 seers a rupee* in Poona at Present (August 1943). About A.D. 1790, when the Peshwa was still ruling at Poona its cost in the Deccan is indicated by Moor's statement "a bullock-load of *jowary* for a rupee." He further explains "*a bullock-load*" as equal to 80 *pucka seers*. It is clear, therefore, that the cost of *jowary* has increased 20 times. Students of Indian Economics should ponder over this contrast

YULE and BURNELL record usages of the *Jowaur, Jowarree* in their monumental work *Hobson-Jobson*.[1] These usages are taken from sources dated c. *1590, 1760. 1800, 1813, 1819* and *1826*. The earliest of these usages is from *Ain-i-Akbari* by Abul Fazl (trans. by Blochman and Jarret) and reads as "*Jowāri*" as will be seen from the following extract :—

"*C. 1590* —In Khandesh "*Jowari* is chiefly cultivated, in some places, there are three crops in a year, and its stock is so delicate and pleasant to the taste that it is regarded in the light of a fruit" *Ain* ed. Jarett, ii, 223)."

Other usages are —*1760* (*Jouri*). *1800* (*jawarry*), *1813* (*juarree*), *1819* (*joiwaree*). *1826* (*Joanee*).

MARSDEN in his book on *Sumatra* (London, 1784) refers to a kind of *padde* as "*peddee Jerroo*" as follows :—"In the Lampoon country they make a distinction of *padde crawang* and *paddee jerroo*, the former of which is a month earlier than the latter."

I cannot say if the word "*jerroo*" mentioned by Marsden has any connection with the word *Jawār* or *Jwar*.

RAGHUNĀTHA GAṆEŚA NAVAHASTA[2] (C. A.D. 1640-1712) a friend of Saint Rāmdas of Mahārāṣṭra composed a work on dietetics called the *Bhojana-kutūhala* (*MS No. 594 of 1899-1915* dated A.C. 1803 in the Govt. MSS Library at the B. O. R. Institute, Poona). In the *1st Paricceda* of this work represented by the above MS I find the varieties of *Yavanāla*[3] mentioned as follows :—

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1. Vide p. 465 of *Hobson-Jobson* (London, 1903)—"*Jowaur, Jowarree* S. Hind, *jawar, juar* [Skt *yavaprakara* or *akara* 'of the nature of barley.'] *Sorghum Vulgare*. Pers. (*Holcus Sorghum* L.) one of the best and most frequently grown of the tall millets of southern countries. It is grown nearly all over India in the unflooded tracts; it is sown about July and reaped in November. The reedy stems are 8 to 10 feet high. It is the *cholam* of the Tamil regions. The stalks are *kirbee* The Ar. *dura* or *dhura* is perhaps the same word ultimately as *jawar*; for the old Semitic name is *dokn*, from the smoky aspect of the grain. It is an odd instance of the looseness which used to pervade dictionaries and glossaries that R. Drummond (*Illus. of the Gram. Parts of Guzeratee* etc. Bombay, 1808) calls JOOAR, a kind of *pulse*, the food of the common people."

2. Vide my papers on this author in the *Journal of the Bombay University* Vol. X, p.p. 132-140. Annals (B.O.R. Institute) Vol. XXII, 254-263 and *Journal of S. M. Library, Tanjore*, Vol. III, pp. 1-12

3. A Hindi Court-poet of Sevai Jaising of Amber (A.D. 1699-1743) has composed a Cookery book भोजनसार (*MS No. 1515 of 1891-95* in the Govt. MSS Library at B. O. R. Institute, Poona). The name of this poet is गिरधारि and he composed this work in A.D. 1739. In the following extract he describes the preparations of जवारि and बाजरा as current in the royal kitchen :—

Folio 5 —"अथ यावनाल गुणाः—॥ नि ॥
धवलो यावनालस्तु गौल्यो बल्यस्थिदोषजित् ।
वृष्यो रुचिप्रदोशोर्शः पथ्यो गुल्मव्रणापहः ॥
तुवरो यावनालस्तु कषायोलो विशेषकृत् ।
संग्राही वातशमनो विदाही शोषकारकः । ॥ रक्तस्य ॥
शारदो यावनालस्तु श्लेष्मलः पित्तलो गुरुः ।
शिशिरो मधुरो वृष्यो दोषघ्नो बलिपुष्टिदः ॥ शाल् ॥
यावनालो महान्बल्यो दुर्जरो वातपित्तकृत् ।
रुच्यः संतर्पणो बालप्रिया मक्का समुद्भवाः ॥ मक्का ॥"

Folio 71 —"यावनाल गुड" is mentioned in the following extract :—
'स्याद्यावनालरसपाकभावो गुडोऽयं ।
क्षारः कषायमधुरः कफवातहारि ॥
पित्तप्रदः सततमेव निषेव्यमाणः ।
कंडूतिकुष्टजननो क्षविदाहदाई ॥"

It will be seen from the evidence to be recorded subsequently that *Yavanala* is a synonym for *Jawar* or *Jondhla*.

SĀDHU SUNDARAGAṆI, a Jain lexicographer who composed his *Dhaturatnakara* in Saṁvat 1680 = A.D. 1624 refers to *Yavanala* or *Jonnala* as follows in his lexicon called the *Śabdaratnakura*[1] :—

(*4th Kaṇḍa*, verse 257)—

"जोन्नाला यवनालश्च, जूर्णा, जूर्णिः क्षणः सणः ॥ २५७ ॥"

In Marathi document of A D. 1541 published by the historian Rajawade we find *Jondhla* mentioned as जोंधळा (*Jojhala*) several times. I reproduce one entry from this document as follows :—

"जोंधळा	गहू	तुरी
२॥।४॥।	॥१.	॥१."

NARAHARI in his medical glossary called the *Rajanighaṇṭu* composed in Kashmir C. A.D. 1450 refers to *Yavanala* and its properties as follows :—

"अथ जवारि मुररो चौपई
हरोभरो मुररो शुन गावति नके अर्कमुपाल लगाया ।
सेको अग्नि भाकरो होय उष्ण उष्ण चावत हरिसोय ।
इति जवारि वर्णना चौपई
अथ बाजरे को वर्णना
सिता हरेभरे लेचावे तिनकौं सेक अग्नि यह दाव
उष्ण उष्ण चावत हरिराय गिरधारी ताके बलि जाय ॥ ५२८ ॥"

1. Ed. by Hargovinddas and Bechardas, Benares (Veera Era 2439).
2. Vide *Sources of Maratha History* (Khaṇḍa 17, Document No. 62).
3. Ed. *Anandashram Sanskrit Series*, Poona, 1896.

Page 360—(१७) यावनालः ।

"यावनालोऽथ नदिजो रक्तस्वारिसंभवः ।
यावनालनिमस्त्वेव खरपत्रः षडाह्वयः ॥ ३८ ॥

गुणाः — यावनालशरमूलमोपन्मधुररुच्यकम् ।
शीतं पित्तनृषापघ्नं पवनामबलप्रदम् ॥ ३६ ॥"

Sugar produced from *Yavanāla* is called Yāvanālī *Śarkarā* and is mentioned by Narahari as follows :—

Page 91— "यावनालो(शर्कराविशेषः)

यावनाली हिमोत्पन्ना हिमानी हिमशर्करा ।
तुवशर्करिका तुवा गुडजा जलबिन्दुजा ॥१६३ ॥"

King Madanapāla of Kāṣṭā race, ruling on the banks of the Jumna composed his medical glossary called the *Madananighaṇṭu*[1] in A.D. 1374. In this work he refers to *Yavanāla* and its synonyms as follows :—

Pape 123 —धान्यादिवर्ग

"यवनालो देवधान्यं जूर्णाह्वो जूनलो नलः ॥ ८२ ॥
यवनालः स्वादुशीतो वातलः कफपित्तजित् ॥ ८३ ॥"

We have now seen that Sadhu Sundaragaṇi (A.D. 1624) uses the words जूर्णा, जूर्णिः for यावनाल and that Madanapala (A.D. 1374) uses the word जूर्णाह्व for यवनाल. *Hemādri*, the famous minister of the Yādavas of Devagiri (A.D. 1260) composed a commentary called the *Āyurvedarasāyana*[2] on the voluminous medical compendium of Vāgbhaṭa II (c. 8th or 9th cent. A.D. according to Hoernle) called the *Aṣṭāṅgahṛdaya*, in which we find the word जूर्ण mentioned :—

Sūtrasthāna, Chap. 14, verse 21—

"कुलत्थजूर्णयाश्यामाकयवमुद्गमधूदकम् ॥ २६ ॥

Hemādri (A.D. 1260) explains in his commentary the word जूर्ण (*Jūrṇa*) used by Vāgbhaṭa II as follows :—

"जूर्णो — यावनालः"

This explanation shows that about 700 years ago the word यावनाल, which is given as an equivalent of जोन्नाला by Sādhu Sundaragaṇi (A.D. 1624), meant जूर्ण a term for *Jawar*, which seems to have great antiquity.

In A. D. 1220 Aruṇadatta, the Bengali commentator of the *Aṣṭāṅgahṛdaya* explains the जूर्ण of Vāgbhaṭa II (*8th or 9th cent.* A.D.) as follows in his commentary *Sarvāṅgasundarā* :—

"जूर्णः तृणधान्यविशेषः दक्षिणापथे जोन्धळक इति प्रसिद्धः"

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1. Ed. (1902, Calcutta) by Ashubodh.

2. Vide Edition of the *Aṣṭāṅgahṛdaya* by Hari Shastri Paradkar, N. S. Press, Bombay, 1938 with my English introduction on Vāgbhaṭa II and his Commentators.

The variants for जोन्धलक in the above line recorded by Vaidya Paradkar are :—"जोहलक, जोषालक, and जोर्णालक." It is clear, therefore, that in the *13th century* the old word जूर्ण for *Jawar* or *Jondhla* was known in the दक्षिणापथ or the Deccan as जोन्धलक and its variants recorded above. The testimony of a Bengali commentator of A.D. 1220, which equates जूर्ण with जोन्धलक is further confirmed by the Mahānubhāva literature of c. 1250 A.D. In fact CAKRADHARA, the founder of the Mahānubhāva Sect, was very fond of जोंधळा and its preparations. In a work (in Marathi) called the लीळाचरित्र composed by Mahīndrabhaṭṭa, the pupil of Cakradhara, there are many references to जोंधळा or *Jawar*.[1] I note below a few of these references from the published edition[2] of *Līlacaritra* :—

Part I, p. 18 —"हुरडा सोले"

Part III, p. 76 —"ना जी गावों एकचि पेव काढीलें:
सारिखेचि जोन्हळे: अथवा घरि सारिखाचि भातु:"

Part IV, p. 48 —"निच (नित्य) कैसा गोसावीयांसि पाणिभातु चि आरोगणा:
कांहीं अनारिसें नाहीं: म्हणोनि जोंधळे आणवीलें"

" p. 49 —"उडीदां जोन्हळेयाची तीयें ढीकरी"

" p. 51 —"तियचिय मात्रे (सामानात) गहुं: चणे: जोंधळे: ऐसे होते:
तेयाचा भक्तजनाचा ठाई उपाहारु केला"

" p. 61 —"पुढां कणीसे वोळगवीली...जोंधळेयाचे कण दोनि पाखिले:
ते गोसावी प्रसादु केला......उपाधिया करवी हुरडा भाजविला"

" p. 62 —"बाइसी हुरडा पाखूडिला: काटा घातला: आणि: साकर घातली:
गोसावीयांसि वोलगवीला: गोसावी प्रसादु केला: गोसावो अवघेयां
भक्तजनां दीधलां: मग गोसावी हुरडा आरोगीला:"

It is clear from the above extracts that in the Deccan of the 13th century

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1. My friend Prof. D. R. Bendre of the Commerce College, Poona, has brought to my notice the following references to जोन्धळा in a *Canarese work* of the *10th Century* A.D. :—
c. 940 A.D.—*Canto IX, Verse 84* of पम्पभारत (or विक्रमार्जुनविजय published by Karnatak Sahitya Parishad, Bangalore, refers to जोल (Jola) :—
Dialogue between कर्ण and कुंती "Setting aside the good deeds of the Lord (his chief दुर्योधन) and being false to जोल can one live thereafter ?" (Here जोल = *Jawar*).
Canto X, 42 (A soldier proceeding to the battle-field observes) :—"How shall I repay जोल if I don't kill so many horses and elephants." Here जोल = Jawar).
I am thankful to Prof. Bendre for these references.

2. लीळाचरित्र by H. N. Nene, Parts I and II (1936); Parts III and IV (1937), Nagpur. Cakradhara was contemporary of King *Kanharadeva* (A.D. 1247-60) and King *Mahadeva* (A.D. 1266-71) of Devagiri. Hemadri was the minister of kings Mahādeva and Rāmacandra of Devagiri. In another Mahānubhava work चक्रधरोक्त सूत्रपाठ (by H. N. Nene, 1936) there are references to जोन्हळी on pp. 18 and 38.

the terms जोन्हळे or जोंधळे (*Holcus Sorghum*) and its preparations were current. We also note here that the present custom of roasting the grain bunches of *Sorghum* and eating them in the field or at home was also current 700 yearsago and these roasted grains were known as हुरडा, a term for these grains which has survived even to this day. The pastoral life in the Deccan has not changed very much so far as the crop of *Jondhla* and its uses are concerned. The custom of preparing धोडरी or omelets from the flour of *Jondhla* was also then current though we now prepare them from the flour of gram. This custom is worth renewing even in cities as *Jawar* is now selling at 4 seers a rupee while it was sold at 80 seers a rupee as observed by Edward Moor in A.D. 1790. In the encyclopaedic Sanskrit work called the *Mānasollāsa*[1] composed by king Someśvara or Bhūlokamalla (A.D. 1116-1127) there is a section on *Hunting* (मृगयाविनोद) in which the use of a *jawār* grain-bunch (or जोंधळ्याचें "कणिस" as we call it to-day) is prescribed for feeding the deer as follows :—

P. 282 —"कणिशैर्यावनालस्य क्रमशाधारयेन्मृगान्"

Keśavasvāmi in his lexicon *Nānārthārṇava-saṅkṣepa* (A.D. *12th century*[2]) mentions यावनाल and जोनाला in the following line :—

P. 118 —"यावनालस्य धान्ये तु जोनाला स्त्री त्रिपुत्स्वरः ॥ ८११ ॥"

In a Canarese inscription[3] of A.D. 1166 we find a reference to corn merchants and *jwāri* as follows :—

P. 110 —"All these chief merchants not minding any tax granted to glorious God Cennakeśava *jwāri* of one spoon (*Saṭṭuga*) from each shop" (line 50-53 of the Inscription).

Canarese scholars will be easily able to record earlier references to *jawār* from literature and other sources (before A.D. 1166) and I earnestly request them to do so.

From the Deccan and Karnāṭaka of the 12th century we now turn to Gujarat in search of the history of *jawār*. We find that Hemacandra, the great Ācārya of the Jainas (A.D. 1089-1173[4]) who lived at Patan in Gujarat composed a lexicon of *Deśī* words called the *Deśīnāmamālā* in

1. Ed. in *G. O. Series*, Baroda, Vol. II (1939).
2. Vide p. 118 of *Classical Sanskrit Literature* by Krishnamachariar, 1937—"नानार्थार्णव संक्षेप *composed in the 12th Century*."
3. Vide p. 110 of *Inscriptions in Northern Karnataka and the Kolhapur State* by Prof. K. G. Kundangar, Rajaram College, Kolhapur, 1939.—Date of Inscription No. 13 in which the reference to *jwāri* occurs is *Śaka 1088* = *A. D. 1166*, (*Tuesday 5th July*).
4. Vide my paper on *Mammaṭa and Hemacandra* (*Journal of Tanjore S. M. Library*, Vol. I, No. 1, pp. 9-13).

which we find the word "जोएणलिआ" and "जोवारी" corresponding to the modern words जोंधला and जवार respectively as will be seen from the following extracts :—

Page 151 —"जोवारीइ जोएणलिआ ॥ ५ ॥

"जोयणलीआ जोवारी । धान्यम् । जोवारी शब्दोऽपि देश्य एव ॥ यथा —

चलजोइ भजोइं गणमिक्लिसु जोयणलीय कारणं कालं ।

कासय वहउ हरिसा उप्फुल्लय जोयणावुन्ति ॥ ४२ ॥"

Hemacandra (in the 12th century) states that the word जोवारी is also a *deśya* word like जोएणलिआ. If this statement is correct we have to regard both these words as dialect words current in Hemacandra's time with some antiquity behind them as Hemacandra has based his *Deśīnāmamālā* on some earlier Deśī lexicons now lost to us.[1]

We have already seen that Madanpāla mentions the word जूर्णाह्व for *Jondhala*. We shall see later that this word is very old. In fact it is used in the earliest medical text known as *Carakasaṁhitā*. *Cakrapāṇidatta* (A.D. 1060) a Bengali commentator explains the term "जूर्णाह्व" as equivalent to जोनार, a word current in his time in Bengal. I have found two references to "जूर्णाह्व" in the *Carakasaṁhitā*,[2] which may be recorded here ;—

Page 111 —*Sūtrasthāna*, Chap. 21, verse 25 —

"प्रशातिका प्रियङ्गुश्च श्यामाका यवका यवाः ।

जूर्णाह्वाः कोद्रवामुद्गाः कुलत्थाश्च कमुद्गकाः ॥ २५ ॥"

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1. Hemacandra composed a Sanskrit lexicon called the अभिधानचिंतामणि in which he notes the synonyms of यवनाल (=Jawār) as follows :—

Page 475 —(Edition of अभिधानचिंतामणि, with a separate index volume)

भूमिकाण्ड (४) का. verse 244—

"यवनालस्तु योनलः ।

जूर्णाह्वयो देवधान्यं जोन्नाल बीजपुष्पिका ॥ २४४ ॥"

Hemacandra writes his own commentary on the above lines as follows :—

"यवस्य इव नालमस्य यवनालः ॥ ६ ॥

यूयते योनलः "मुरल" (उणा ४७४)

॥ इत्यले निपात्यते ॥ २ ॥

'जरैविजरायां' जूर्यते जूर्णः "गोयरव्येदितः" ॥ ४ ॥ ४ ॥ ६६ ॥

इति कस्य नत्वम्, जूर्णं इत्याह्वयो यस्य जूर्णाह्वयः ॥ ३ ॥

देवप्रियधान्यं देवधान्यं जनाद् नालमस्या जोन्नाला पृषोदरादित्वात् ॥ ५ ॥

बीजाकारं पुष्पमस्य बीजपुष्पिका ॥"

2. Ed. by Nirnayasāgar Press, Bombay, 1922—The B. O. R. Institute Govt. MS *No. 66 of 1872-73* wrongly called चरकसंहिता is in fact Cakrapāṇidatta's comm. on चरकसंहिता — folio 149—"जूर्णाह्वो जोनान इति ख्यातः"

Page 149 —*sutrasthāna*, Chap. 27. verse 17 —
"त्रिविरोत्कृष्ट जूर्णाह्वः श्यामाकसमो गुणैः"

Cakrapāṇidatta explains :—
"जूर्णाह्वः जोनार इति ख्यातः"—"जोमान"[1] is a variant in MS No. 66 of 1872-73.

In the vernacular names of *Jawar*[2] given by Watts in his *Dictionary* (p. 290 of Vol. VI, part III) we find the following names which come phonetically near to जोनार of A.D. 1060 :—(HINDI)—*Janera*; (BENGALI)—*Kasa-jonar*; (N.W.P. AND OUDH)—*junri* ; (*PB*)—*junri*; Watt here records some other usages as follows :--

(1) BURMESE—*Pyoung* ; (2) *Zúrna* (= Sanskritized form of the Arabic name *Dhura*), *Yavanāla*, *rakta Khurnah* (*Sanskrit*); (ARABIC)—Dhúra (zúra), *taam*, *jawar* (—smaller millet), *dhurat*; (EGYPT)—*Kaydi durra* ; (CHINESE)—*Kao-liang*. (—tall millet).

Yādavaprakāśa (c. 1050 A.D.) in his lexicon वैजयन्ती[3] refers to *jawar* or *jonnāla* as follows :—

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1. *Ibid.*, p. 111—footnote 3 explaining the term जूर्णाह्व in verse 25 of Chap. 21 of *Sutrasthana* records the following explanation of जूर्णाह्व as given by शिवदास a later commentator of *Caraka* :—

"जूर्णाह्वा स्वनधान्यविशेषा दक्षिणापथे योर्णक इति प्रसिद्ध इत्यस्य इति शिः" (शिवदास).

We have already seen that Aruṇa or Aruṇadatta explains the word जूर्ण as जोन्दलक in दक्षिणापथ. The variants of this जोन्दलक are जोह्नलक, जोन्नालक, and जोर्णालक. The variant योर्णक mentioned by शिवदास is an addition to these variants of Aruṇadatta's text.

2. The Prakrit Dictionary called "*Paia-Sadda-Mahaṇṇavo*" Calcutta, 1923-28 (p. 448) records the following usages of जुआरि (juāri) :—

A.D. 1143—(i) जुआरि [Vide p. 546 of सुपासनाहचरिअ ed. by Har Govinddas, Benaras, 1918-19]

C.A.D. 1090—(ii) जुआरि [Vide सुरसुंदरीचरिअ (Paricceda I. Gāthā 7,) published by जैनविविध-साहित्यशास्त्रमाला, Benares, 1916.]

We have already noted जोवारी and जोण्णलिआ recorded as *Deśī* words by Hemacandra. जुआरी and जोवारी are synonymous.

About the dates of the two Jain works referred to above I note here the remarks of Winternitz, *Indian Literature*, Vol. II, Calcutta University.

Page 576 —"*A voluminous Prakrit poem Supāsanāha-Cariyam* by Lakṣmaṇa Gaṇin deals with the Story of the Seventh *Tīrthakara*. This work, composed in the year 1143 A.D. also contains 68 Apabhraṃśa verses."

Page 536 —"*Surasundarī-cariam* by Dhaneśvara, the pupil of Jineśvarasūri and Buddhisāgarasūri written towards the *end of the 11th century* is a voluminous romantic epic in Prakrit."

3. Ed. by Gustav Oppert., 1893.

भूमिकाण्ड—वैश्याध्याय—

"—यावनालस्तु योनलः ॥ ४९ ॥
जूर्णाह्वयो देवधान्यं जोन्नाला बीजपुष्पिका ॥"

Hemacandra's lines in the *Abhidhanacintamaṇi* quoted by me already are exactly identical with the above lines in the *Vaijayantī*. Evidently Hemacandra (A.D. 1089-1173) has borrowed from *Vaijayantī* (c.A.D. 1050) or from some common source.

It is clear, however, from the statements of Hemacandra and Yādavaprakāśa that the following terms were used about A.D. 1000 for modern *Jawar* or *Jondhla* —

यावनाल or यवनाल, जोनल, जूर्णाह्वय, देवधान्य, जोन्नाला, बीजपुष्पिका,
जोएणलिआ, जोवारि, जुआरि

It is for linguists to see how far Hemacandra's grammatical explanation of the synonyms of *Jawar* such as यवस्य इव नालमस्य यवनालः" etc. are historically correct.

Going backwards from A.D. 1000 we find that in a *Tamil* work of the *8th century* A.D. the *jawar* is referred to as *Irungu*. The modern word in Tamil for *jawar* is *Colam*. *Irungu* is mentioned in *Jīvakacintamaṇi* of the 8th century A.D.[1]

Vāgbhaṭa II (8th or 9th century A.D. according to Hoernle) refers[2] to both जूर्ण and जूर्णाह्व as synonyms for *jawar* as follows :—

(1) सूत्रस्थान Chap. 14, verse 21.

"कुलत्थजूर्णश्यामाकयवमुद्गमधूदकम् ॥ २६ ॥"

(2) निदानस्थान Chap. 7, verse 46 (This verse is taken from अष्टांगसंग्रह निदानस्थान Chap. VIII).

"मुद्गकोद्रव जूर्णाह्वकरीरचणकादिभिः ॥ ४६ ॥"

I have already recorded the explanation of Aruṇadatta and Hemādri regarding the meaning of the term जूर्ण used by Vāgbhaṭa II and hence they need not be repeated here.

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1. In response to my inquiry about *Tamil reference to jawar* my friend Rao Bahadur K.V. Rangaswami of Madras writes to me under date 16th August 1943 :—

"Mr. V.R. Ramachandra Dikshitar, M.A. whom I had consulted writes as follows :—

So far as I know Colam is a modern word.

It was known in mediaeval literature as *Irungu*. The Sangham classics do not mention it nor the *Silappadhikaram* nor the *Kural*. The earliest reference is in *Jīvakacintāmaṇi*, 8th century A.D.

I am thankful to my ever obliging friends Rao Bahadur Aiyangar and Prof. Dikshitar for the above information.

2. Vide Paradkar's edition of the *Aṣṭāṅgahṛdaya* already referred to in this paper.

Vagbhaṭa I (c. A.D. 625 according to Hoernle) refers to *jawar* as "जूर्णाह" in the following line of अष्टांगसंग्रह, सूत्रस्थान Chap. 7, verse 12— (तृणधान्यानां सामान्यगुणाः)

"कङ्गुकोद्रव जूर्णाहगदोषष्यापादिकाः ॥ १२ ॥"

See निदानस्थान, Chap. 8 —"मुद्गकोद्रव जूर्णाह etc."

Unfortunately the commentator इन्दु on the अष्टांगसंग्रह does not explain the word जूर्णाह in the above line.... He merely states "कंगवादयः". It is, however, clear that the term जूर्णाह was known to Vagbhaṭa in the *7th century* A.D.

In a Jain Prakrit work called the *Tiloyapaṇṇatti*[2] (*Trilokaprajñapti*) which belongs to the first stratum of the pro-canon of the Digambaras and the author of which JADIVASAHA is a revered author of antiquity we find a reference to *jawar* as जमणाल (Sanskrit यवनाल) as follows :—

Page 157—"जमणाल वल्ल तुवरी तिलजव गोधुम्ममास पहुदीहिं ।
सव्वेहिं सुधण्णेहिं पुराइं सोहंति भूमीहिं ॥ १३३ ॥"

Theeditorsidentify जमनाल with "यवनाल (जुवार)" in their Hindi translation[3] of the above stanza, which includes जमणाल amongst the best kinds of grain like wheat etc. The *Tiloyapaṇṇatti* is assigned to the *5th century* A.D. by some scholars. At any rate this reference to जमणाल (यवनाल) is very important, recorded as it is in a Prakrit text of great antiquity, incorporating the hereditary knowledge and ancient tradition of the Jainas pertaining to Jaina cosmography, dogmatics, mythology and chronology.

I have already recorded two references to जूर्णाह in the *Caraka-saṁhita*,[4] one of the earliest medical texts. According to Buddhist tradition *Caraka* was the court physician of King Kaniṣka[5] who is

1. Ed. by Pt. Rāmchandra Shāstri Kinjavadekar, Chitrashala Press, Poona, 1940, with the commentary called शशिलेखा by इन्दु.

2. Ed. by Dr. A. N. Upadhye and Prof. H. L. Jain, Pub. by the Jain Saṁskriti Saṁrakṣaka Sangha, Sholapur, 1943 with Hindi Translation by Pt. Balchandra.

3. This translation reads :

"यवनाल (जुवार) वल्ल, तुवर, तिल, जौ, गेहूँ, और उडद, इत्यादिक समस्त उत्तम धान्यों से युक्त भूमियों द्वारा वे नगर शोभा को प्राप्त हैं ॥ १३३ ॥"

4. Vide p. 33 of *Aryan Medical Science* by Thakore Sahib of Gondal (London, 1896)—"Some believe him (चरक) to have been born at Benares 320 years B.C."—Pt. Durgashankar K Shastri (in his *History of Āyurveda* in Gujarati, Ahmedabad, 1942, p. 87) makes 5th century A.D. as the latest limit for the chronology of early *Āyurveda Saṁhitas*. He also states that *Carakasaṁhita* and *Suśrutasaṁhita* were completed before 5th Cent. A.D. (i.e. before A.D. 400 or so.)

5. Vide p. 256 of Vincent Smith's *Early History of India*, Oxford, 1914—Kaniṣka came to the throne "*most probably in 78* A.D." Dr. Fleet thinks that Kaniṣka came to the throne "*in 58* B.C."

assigned by some scholars to the period A.D. 125-140. Whatever be the exact date of the *Carakasaṁhita*, the fact of its being one of the earliest medical texts before A.D. 400 or so is acknowledged by many scholars and consequently we may regard the term "जूर्णाह्व" as the earliest usage of this term for *jawar* or *jondhla* so far known. As regards the other synonym for *jawar* viz. यवनाल which occurs in the Prakrit work of about the 5th century A.D. as "जमणाल" I have to record its usage in another earliest medical text, the भेलसंहिता, where it appears as "यावनाल" as will be seen from the following extract :—

Page 48 of Bhelasaṁhita (ed. by Asutosh Mookerjee, Calcutta University, 1921) भोजनविधि—

"हरेणवो मसूराश्च सतिताश्च तथाढके ।
कुलुत्याश्चाविशेषेण कषायमधुरा रसे ॥
सर्वे तु लवणक्षाराः दिव (दीप) नीय (ाः) प्रकीर्तिताः ।
माषू (पू) प्याश्च विशेषेण दुर्बलानां हितानि च ॥
श्वदंष्ट्रा यावनालश्च द्वौ क्षारौ शीतलौ स्मृतौ ।
शुक्र (क्रं) विनिहि (ह) तस्तौ तु दृष्टिं चापि शरीरिणाम् ॥"

The mention of यावनाल, and its properties along with those of other grains like मसूर, कुलुत्थ etc. in the *Bhelasaṁhita* indicates that यावनाल is the name of a grain known to Bhela, the pupil of आत्रेय (6th cent. B.C.)[1] Ātreya had six pupils "each of whom is reputed to have committed to writing the teaching of the master in the form of a संहिता or compendium." So far three of these *Saṁhitas* have been discovered. They are अग्निवेश संहिता, in the form of the redaction by चरक, (2) भेलसंहिता, (ed. by Ashutosh Mookerjee) and (3) काश्यपसंहिता[2] recently published by Rajaguru Pandit Hemarāj of Nepal. If the tradition about the Ātreya school of medicine is correct we have to regard the भेलसंहिता as earlier than the अग्निवेशसंहिता preserved in the form of चरकसंहिता and published by the N. S. Press, Bombay. There is a divergence of views about the chronology of these *Saṁhitas*, which go by the names of *Caraka*, *Bhela* and *Kāśyapa*. It is, however, agreed to by all scholars that they are the earliest medical treatises that have come down to us from antiquity.

Dr. Dinesh Chandra Sircar states that *Aśvaghoṣa* is said to have been a contemporary of Kaniṣka. Aśvaghoṣa's *Buddhacarita* was translated into Chinese *between 444 and 421* A. D. (Vide pp. 379 and 389 of *Successors of Satavāhanas*. Calcutta, 1939). If the tradition about *Caraka's* connection with Kaniṣka is correct the date of Caraka is evidently before A.D. *400*.

1. Vide prefatory *Note to Bhelasaṁhita* by Sir Ashutosh Mookerji.

2. Published Nirnaya Sagar Press, Bombay, 1938.

Starting from A.D. 1839 we have now moved backward through centuries of the history of *Jawār* (*Holcus Sorghum*) and have reached the first few centuries of the Christian era, when this grain appears to have been cultivated and used by our ancestors and when also its properties were studied and recorded by the earliest medical writers of those centuries. If this view based on the data recorded in detail in this paper is accepted we may be able to understand the significance of the following remarks of LASSEN[1] about the introduction of *jawār* into Italy in the 1st century of the Christian era :—

"Another Indian cereal *Milium* was not exported from India it is true ; but on the other hand its cultivation was introduced into Italy ten years before PLINY wrote this passage (*Periplus Mar*, Eryther p. 32). It is *probably* the kind of millet very common in India which botanists call *Holcus Sorghum* and the Indians *guari* or *gawar* in the vernacular."

As Pliny, the Roman author flourished hetween A.D. *23 and 79* and as there was contact of India with Rome in this century the probability of the cultivation of Indian *jawār* in Italy as suggested in the above extract cannot be ruled out in a summary way. In fact Prof. Franklin Edgerton[2] of the Yale University (U.S.A.) has found a reference to the city of Rome in the *Sabhāparvan* of the *Mahābhārata* which he has critically edited for the B.O.R. Institute Critical Edition of this Great Epic of India.

The history of plants, especially when these plants have migrated from their original habitat to different regions of the globe, is necessarily interwoven with the history of the different people who cultivated them in remote ages of the history of the globe. I am quite incapable of getting access to the sources of the history of all these people and must confine my studies to such of these sources as are available to me easily. Even this study of the history of the *jawār* must remain only as a sketch of this history made by a shaking hand on too big a canvas stretching from 2200 B.C. to A.D. 1850 The chronology of the sources from which I have drawn my data is somewhat definite for sources later than A D. 1000 but only relative so far as sources earlier than A.D. 1000 are concerned. However, in the present stage of our chronology we have no other recourse but to represent only the current views about them, leaving it to future scholars to solve the problems of early chronology on the strength of their own studies of the present sources and in the light of new sources, if discovered hereafter.

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1. Vide Lassen's *History* (English Trans. in the *Journal of the Bihar and Orissa Research Society*, Patna, Vol. X, 1924, Page 251.)
2. Vide pp. 262–265 of the *Journal of the American Oriental Society*, Vol. 58.

About the several problems that arise out of the present collection of data bearing on the history of *Jawār* it is better to defer our judgement. We have no direct peep into remote antiquity and consequently the gleams of light that are furnished by a few documentary references are the only guides that help us to clarify the age-long history of this edible grain, which may have been cultivated in India even prior to the Aryan invasion as observed by Watts in his *Dictionary of Economic Products of India.*

The following chronological table will show at a glance the evidence collected in this paper regarding the antiquity of *Jondhla* or *jawār* :—

Chronology	Evidence J =*Jondhla* or *Jawār* (Holcus Sorghum)
B.C. 2200	Evidence about the existence of J furnished by an Egyptian tomb (Swanson and Laude).
	J (=यावनाल) mentioned in भेलसंहिता, one of the earliest medical treatises like the चरकसंहिता and काश्यपसंहिता.
	J referred to in the Bible according to Smith (*History of Bible Plants*, p. 214).
A.D. 100—200	J (=जूर्णाह्व) Mentioned in चरकसंहिता.
	J (=? an Indian Cereal *Milium*) introduced into Rome in the time of Pliny (A.D. 23—79) according to Lassen.
A.D. 200—300	J Cultivated in China, where it was probably introduced from outside.
400—500	J (=जमणाल=यवनाल) mentioned in तिलोयपण्णत्ति of जदिवसह, a Jain author.
c. 625	J (=जूर्णाह्व) mentioned in अष्टांगसंग्रह of Vāgbhaṭa I.
700—800	J (=चोलम्) mentioned in the *Tamil* work जीवकचिन्तामणि.
1050	J (=यावनाल, योनल, जूर्णाह्वय, देवधान्य, जोन्नाला etc.) mentioned by यादवप्रकाश.
8th or 9th Cent.	J (=जूर्ण) mentioned in the अष्टाङ्गहृदयसंहिता of Vāgbhaṭa II.
A.D. 1060	J (=जूर्णाह्व=जोनार) mentioned by चक्रपाणिदत्त, a Bengali commentator of चरकसंहिता.
c. 940	J (=जोल) mentionad in *Canarese* work पम्पभारत.
1089—1173	J (=जोवारी, जोण्णलिआ, यावनाल, योनल, जूर्णाह्वय, जोन्नाल. देवधान्य etc.) mentioned by हेमचन्द्र in देशीनाममाला and अभिधानचिन्तामणि.
1090	J (=जुआरि) mentioned in a Prakrit work सुरसुंदरीचरिअ.
1100—1200	J (=यावनाल, जोन्नाला) in नानार्थार्णवसंक्षेप of केशवस्वामी.
1116—1127	J [=यावनाल (कणिश)] mentioned by Someśvara in his मानसोल्लास.

Chronology	Evidence J = *Jondhlā* or *Jawār* (Holcus Sorghum)
1143	J (=जुआरि) mentioned in the Prakrit work सुपासनाहचरिअ.
1166	J mentioned in a *Canarese inscription.*
1220	J (–जूर्ण = जोन्धलक in दक्षिणापथ) mentioned by Bengali author अरुणदत्त in his Comm. on अष्टाङ्गहृदय (variants of जोन्धलक are जोहलक जोमालक, जोर्णालक).
c. 1250	J (=जोंधळा, जोन्हळा) mentioned in लीळाचरित्र and चक्रधरसूत्रपाठ (Mahānubhāva texts).
c. 1260	J (=जूर्णा=यावनाल) mentioned by Hemādri in his Comm. on the अष्टांगहृदय.
1374	J (=यवनाल, जूर्णाह्व, देवधान्य, जूनल etc.) mentioned in the मदननिघण्टु, a medical glossary by मदनपाल.
c 1450	J (=यावनाल) described in the राजनिघण्टु of नरहरि (in Kashmir).
1541	J (जोंधळ) mentioned in a Marathi document along with गहू and तुरी.
1590	J grown in Khandesh (*Ain-i-Akbari*).
1624	J (जोमाला, यवनाल, जूर्णा, जूर्णि) mentioned by Sādhusundaragaṇi in his शब्दरत्नाकर.
c. 1650	J (यावनाल) described by Raghunātha Navahasta friend of Saint Ramdas in his *Bhojana-Kutūhala.*
1739	J used in the royal kitchen of Sevai Jaising of Jaipur (Rajputana).
1760	"*Jouari*" (reference quoted in *Hobson-Jobson*).
1784	"*Jerroo*" a kind of paddy in Sumatra mentioned by Marsden.
1790	Description of J by Capt. Edward Moor.
1800	"*Jowarry*" (*Hobson-Jobson* reference).
1813	"*Juarree*" (*Hobson-Jobson* reference).
1819	"*Joiwaree*" (*Hobson-Jobson*).
1826	"*Joanee*" (*Hobson-Jobson*).
1839	Descriptionof J by John Graham in his work on *Bombay Plants*

32. The History of Maize (Makā) in India— Between A. D. 1500 and 1900*

For the last ten years I have been studying the history of Indian plants of medical and nutritive value in response to the suggestion made to me by my esteemed friend, the late Dr. Birbal Sahni, F. R. S. Several papers on this history have already been published by me in different Oriental journals and other publications. While engaged in the study of the history of Indian plants in 1948, the General Secretary of the Royal Asiatic Society of Bengal, Calcutta, wrote to me on 5th April 1948 as follows :—

> "I enclose copy of a letter[1] received from the Registrar, Indian Agricultural Research Institute, New Delhi, asking for some information concerning the existence of *corn* (Zea Mays) in India long before the dircovery of America by Columbus. I shall be grateful if you will kindly let me know your remarks on the subject for forwarding to the Research Institute in New Delhi".

I informed the General Secretary of the Royal Asiatic Society of Bengal that the information given to the Agronomist of Texas by Indian students about historical records proving the existence of *Corn* (Zea Mays) in India before the discovery of America by Columbus was incorrect, if not misleading, as I shall show in a special paper projected by me on the history of Maize in India, which I have been studying for the last few years.

Subsequent to the above reply I got into direct touch with the Agronomsit of Texas viz. Prof. R. G. Reeves and sent to him many of my papers on the history of Indian plants Prof. Reeves has now sent to me

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* Prof. D. V. Potdar Commemoration Volume, pp. 14-25.

1. This letter dated *17th March 1948* forwarded to the Royal Asiatic Society of Bengal the following letter dated *19th August 1917* from the Agronomist, Texas Agricultural Experiment Station, Texas(U.S.A.) :—

"I have recently been talking with students from your country (India) and some of them tell me that there are historical records of the existence of *Corn* (Zea Mays) in your country long before the discovery of America by Columbus. I have been interested in the history of *Corn* for a number of years andwouldlike to have more informationconcerning these reports. Will you please pass this inquiry along to the person who can give me some suggestions and literary reference with the most convenience. I shall thank you very much for doing me this favour."

his book[1] on Corn or Zea Mays in which he has traced the history of this plant from non-Indian sources.

I note below some points from this history for the information of readers to whom Prof. Reeves' book may not be easily available :—

Page 7-9

(1) *November 5, 1492*—Two Spaniards delegated by Cristopher Columbus to explore the interior of Cuba returned with a report of "*a sort of grain they call Maiz which was well tasted bak'd dry'd and made into flour.*" Thus was introduced to the white man *Maize*, a plant of immense food value.

(2) Today *Maize* is grown in every state of the U.S.A. and *its crop is maturing somewhere in the world every month of the year.* It grows in Canada, Russia, Caspian Plain, Peruvian Andes, Hindustan. It is grown on more than 200 million acres of land and produces an annual crop exceeding four billion bushels.

(3) *Maize* has a diversity of forms. The Russians have collected more than 8000 varieties. There are, however, five main types —*dent, flint, flour, sweet* and *pop.*

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1. *The Origin of Indian Corn and its Relatives* by P. C. Mangelsdorf and R. G. Reeves, Bulletin No 574 of the Texas Agricultural Experiment Station, Texas (U. S. A), May 1939, Pages 315. At the end of this volume a list of books cited is given. The following items from this list may be of interest to the readers of this paper :—

(1) Anonymous, 1938. *Maize and the Maya.* Carnegie Inst. of Washington News Service, Bul. IV : 219–224.

(2) Baillon, H., 1894 *Histoire des Plantes.* Paris.

(3) Bement e. n., 1853. *History of Indian Corn.* Trans. N. Y. Agr. Soc. B : 336.

(4) Burtt-Davy, 1914. *Maize, its History,* cultivation, handling and uses. Newyork, Bombay and Calcutta.

(5) Candolle, A. de. 1914. *Origin of Cultivated Plants.* Newyork. 387-397.

(6) Collins G. N. 1912. *Origin of Maize.* Jour. Wash. Acad. Sci. 2 : 520-30.

(7) Laufer, B. 1907. *The Introduction of Maize into Eastern Asia.* Proc. 15th Int. Congr. Americanists I : 223–257.

(8) Vavilov, N. I. 1926 b. *The Origin of Cultivated Plants.* Proc. Int. Congr. Pl. Sci. 1 : 167–169.

(9) Weather Wax, P.1923. *The Story of the Maize Plant,* Chicago.

(10) ——Do——1936. *The Origin of the Maize Plant and Maize Culture in Ancient America.* Univ. N. Mex. Bul.No. 296 : 11–18.

(11) Wissler, c., 1916. *Aboriginal Maize Culture as a typical Culture Complex,* American Jour. Soc. 21.

(4) *Maize* would soon disappear from the face of the earth, if deprived of man's protection.

(5) Ancient civilizations of Peru, Central America, and Mexico were based upon the culture of *Maize*.

(6) There is no historical evidence pertaining to *Maize* previous to *A. D. 1511*. Maize is not mentioned in the *Bible* and there is no Hebrew or Sanskrit term for it. The Greek writers discoursed on many crop plants, among which *Maize* is not mentioned. The Greeks have no word for it. There are no Egyptian representations of the plant or ear.

(7) Extensive search of the pre-Columbian Chinese literature reveals no evidence that the Chinese scholars were acquainted with it. The records left by the ancient Americans —the Incas, Mayas, and Aztecs — tell us nothing of the origin of Maize, though they do point out its importance in the economic, social, and religious life.

(8) There are no fossil remains of Maize. A specimen from Peru believed to be a fossil has been proved to be a clay rattle or perhaps a toy for the amusement of some prehistoric infant.

(9) There is absence of clear-cut evidence about the Maize from history, archæology, geology and paleobotany. We must, therefore, study the plant itself and its relatives.

Pages 25-30 —

(10) The first printed reference to Maize and its botanical description appears in *"Decades"* by Peter Martyre published in *A. D. 1511*. The first part of the first "Decade" which refers to *Maize* was written by *November 1493* within one year after the discovery of America by Columbus. An English Translation of the *"Decades"* by Richard Eden was published in *A.D. 1555*.

(11) The first reference to Maize in a botanical publication appeared in *A.D. 1532* in the *"Stirpium"* by Bock. Ruel mentions the plant in *1536*.

(12) The first artistic and accurate illustration is given by Leonard Fuchs in his herbal of *A.D. 1542* (Figures 10 and 11). Fuchs called it *Turcicum frumentum* or *Tūrckish Corn*.

(13) In *A. D. 1493* Columbus took *Maize* to Europe on his return from America .He gave it the name *Maize* which is a modification of the Arawak name *màhiz* or *Marisi*. Subsequently

a profusion of names for this plant became current e.g. the following :—

Panicum (by *Peter Martyre* in A.D. 1493).

Walschkorn (by *Bock*, 1539).

Turcicum frumentum (by *Fuchs*, 1542).

Milium indicum (by *Dodoens*, 1552) and in 1566 *Tritucum frumentum*.

Frumentum indicum Mays dictum (by *C. Bauhin*, 1623).

Frumentum asiaticum (by Gerard, 1636).

Triticum indicum (by J. Bauhin 1650).

Zea Mays (by *Linnaeus*,1737).

(14) Sturtevant(1879) reviewed the literature regarding the eastern and western origin of the Maize,

Page 31 —

(15) *Figure 13* —Reproduction of Parkinson's (1640) description of *Maize*.

Page 34 —

(16) The earliest written record of *Maize* appears in *Popol Vuh*, the sacred book of the Quiché Indians of Western Guatemala, whose records go back to the *8th Century*. This book records a legend of four barbarians who guided the Quichés to "A most excellent land, so full of good things, where the *white* and *yellow Maize* did abound."

Page 35 —

(17) *Maize* is not mentioned in any Old World treatise prior to A.D. 1492. It is not mentioned in the *Bible*, *Ṛgveda* and other Vedas (no Sanskrit or Hebrew word for Maize). There are no Egyptian representations of Maize. Pliny mentions *Zea* as growing in Egypt but *Zea* was a kind of *wheat* according to early Greek botanists. No authentic specimens of *Maize* grain or ear have been discovered in Egypt, Assyria or Babylonia.

(18) The specimen of Maize found by Rifaud in a tomb at Thebes is now conceded to have been the work of an impostor. Similarly the Charter of Incisa of A.D. 1204 according to which seeds of Maize were brought from Anatolia by the Crusaders has been shown to be a fabrication (Cf. East, 1913).

(19) The Portuguese voyagers to Africa prior to A. D. 1492 never encountered Maize.

(20) *Ortus Sanitatus* (A. D. 1491) contains no reference to *Maize*.

(21) Li Shih-Chen, the greatest Chinese authority on natural history refers to *Maize* in his *Pen ts 'ao kang mu*. Bonafous (1836) supposed that this book was written in the 16th Century. De Candolle (1855) and later writers have shown that this treatise was probably written at a much later date than that supposed by Bonafous.

Page 36 —

(22) Columbus in a letter to Ferdinand and Isabella dated *30th May 1498* writes of the use of *Maize* in the New World and in another letter, speaking of his brother states: "During a journey in the interior he found a dense population entirely agricultural and at one place passed through *eighteen miles of corn-fields*."

(23) Within one generation *Maize* was known over most of Europe. Not later than A. D. 1540 *Maize reached China from the west through Tibet from India, to which the Spanish or Portuguese traders had carried it in the previous generation.* The first reference to Maize in Chinese literature is assigned to A. D. 1573 by Goodrich.

Page 38 —

(24) It is now generally agreed that *Maize* was confined to America before the discovery.

Pages 39-46 —

(25) Evidence of Archæology and Ethnology proving the great Antiquity of Maize in America.

It now remains for me to record the results of my study based mainly on Indian sources but supplemented by information from the non-Indian sources available to me so far.

(1) G. Renard in his book "*Life and Work in Pre-historic Times*" (London, 1929) makes some remarks on the beginnings of agriculture in pre-historic times. In this connection he makes the following remarks on the Asiatic origin of *Corn* (Maize) :—

Page 127 — *Corn* which was the conquering grain in nearer *Asia*, in Egypt,[1] and all over Europe seems to be a *native of the first-named*

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1. A. Lucas in his book on "*Ancient Egyptian Materials and Industries*" (3rd Edition, 1945) p. 61 (foot-note 2) definitely mentions *maize* as "*a modern importation into Egypt*." This opinion of a scholar who has made a thorough study of ancient Egyptian materials discovered in the ancient tombs of Egypt contradicts the statement of G Renard that maize was found in the oldest Egyptian tombs.

country (*i. e. Asia.*) It has been found in a wild state[1] near Mount Hermon in the North of Palestine. How was it cultivated? We do not know. *We find it in the oldest Egyptian tombs.* We find it in the ruins of the lacustron cities besides *rye, barley, buckweat* and *millet*, the last of which perhaps disputed with it for sovereignty for considerable time."

Page 130 —"*Corn* and rice have crossed the seas to conquer America. In revenge America sent to Europe *maize*, which in the beginning, forgetful of its origin, she called *Turkish corn*, and with the tomato, the sweet potatoetc."

(2) E. J. W. Macfarlane in his "*American Indians' Gifts*" (London) makes the following remarks[2] on *Maize* :—

"*Maize* or *Indian Corn* was the staple grain of the ancient Americans. Unlike wheat, rice, barley, and other old world Cereals, *Maize has no wild relatives* and would soon become extinct outside of cultivation. There is one large Mexican grass called Teosinte which will cross with Maize with difficulty and gives sterile hybrids. A study of the Chromosomes of these hybridsshows that *Maize and Teosinte sprang long ago from a common stock*. The genetics and botany of Indian Corn show that it has been *in cultivation for thousands of years*. In fact some scientists believe that it may be the most ancient of all cereals............Indian Corn which supported the ancient American Civilizations is *now a staple diet for the hardy hill people in parts of the Himalayas*. These folk have no inkling that they are beholden for their food to the ingenuity of Mayas and Incas of long ago."

(3) One of the earliest figures of Maize in a European book is reproduced by Howard S. Reed in his *History of Plant Sciences* (page 67) Waltham,Mass. U. S. A. (1942), *Figure 10*. This figure is taken from the book *New Kreüterbuch* (**A. D. 1543**) by a medical botanist Leonard Fuchs (A. D. 1501-1566) of Tubingen University. Fuchs wrote a work on plants called *De Historia Stirpium* containing pictures of 511 plants. He believed in the supremeauthority of Dioscorides. He describes Maize as *Turcicum frumentum* (Türckisch Korn).

(4) Speaking of Herbalists in the Orient, Howard S. Reed (p. 76 of

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1. Attempts to prove the native home of a plant in a particular region by the fact of its growing in such a region in a wild state in modern times haveoften misled botanists about its true home.

2. Theseremarks were sent to me by Mr. S. L. Narasimha Rao, B. A., L. T. of Cocanada through my friend Prof. E. V. Viraraghavacharya of the P. R. College of this place. I am thankful to both these friends for their interest in my present inquiry.

Plant Sciences) refers to *Li Shi Chen's herbal* **(A. D. 1590)**. This book contains an illustration and a notice of Maize At this time Maize had become an important food plant in parts of China. Reed observes that the assumption that maize may have been introduced into China in pre-Columbian times is disproved by the *absence of any notice of this Cereal from all Chinese herbals prior to the discovery of America.* "The Angustinian monk *Martin de Herrada* spent three months in China in **A. D. 1575**. He published his "*History of the Great and Mighty Kingdom of China*" (Rome, **1585**). Herrada mentions *wheat, barley, millet* and **Maize** as cultivated in China. The mention of Maize is important because it shows that the *Spaniards who took it to Philipines at an early date were instrumental in introducing it into China.* (Ibid, p. 79). Reed informs us further (p. 21) that "*Europeans became acquainted with Maize after the expedition of Columbus to Cuba in* **1492**, who found it cultivated there by Indians." The home of the Maize was Peru but the exact original home is unknown (p. 22) though Maize was brought into cultivation from stone age (p. 23).

(5) The University of Bombay possesses a manuscript of an anonymous *Nighaṇṭu* (a glossary of medical and botanical terms) in the Bhadkamkar MSS collection (No 12). The *Nighaṇṭu* appears to be later than A. D. 1700. It mentions *Makkā* (Maize) among minor cereals (*upadhānyas*) in the following extract :—

Folio 6 b —

"अथ उपधान्यानि आह"

यावानलः ॥

मेदो मक्का, यवानालो महान् बल्यो दुर्जरो वातपित्तकृत् ॥

रूच्यः संतर्पणो बालप्रियो मक्का समुद्भवाः ॥१॥"

We learn from the above extract that *Makkā* (Maize) is a variety of *yāvanāla* (wrongly written in the extract as यावानल and यवानाल). It is called "महान् यावनाल" i.e. a bigger kind of *yāvanāla* (Holcus Sorghum) or *Jondhlā*[1] or *Jawar*. It is tasteful, strengthgiving, dear to children etc.

(6) *Maize* is called *Maka* in Marathi. My friend Mr. S. L.

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1. Vide my paper on the History of Jondhḷā (*Holcus Sorghum*) in the *B. C. Law Volume, Part I*, pp. 142—158—(1944).

I have proved the history of *Jondhla or yāvanāla* for about 2000 years. The *Maize* plant looks like the *Jondhla* plant but the seeds of the Maize are bigger than those of *Jondhla*, hence the term "महान् यावनाल" for Maize.

Narasimha Rao of Cocanada has sent to me the following list of words for *Maize* in a communication dated 29-3-1945 :—

Eng.—*Maize* ; Indian Corn.
Sanskrit—Yāvanāla.
Hind.—Makka.
Ben.—Buththe, Bhuttā and Makāi.
Burm.—Pysungboo.
Duk. and *Hind.*—Mukka jauri.
Mah.—Makaibonda.
Tam.—Mukka-Cholam.
Telugu—Mokka-Jonnalu.
Mal.—Jagung.
Can.—Bottah.
Cing.—Munwairingu.

I leave it to the students of historical linguistics to explain how and when the above-mentioned vernacular[1] terms for *Maize* became current in India and Burma. In particular it would be useful to study historically the terms : *Makā*, *Makka*, *Mukka*, *Makai*, and *Mokka* in the above list.

(7) In the Marathi Encyclopaedia called the *Jñānakośa* by S. V. Ketkar (Vol. XVIII p.म 1) we are informed that the native habitat of *Maka* (Maize) is America. *Possibly the Portuguese brought Maize to India.* It must have taken about 100 years to cultivate in India different varieties of Maize to suit different climates in the different parts of India. On p. म 87, *Maka* is mentioned as one of the *Upadhānyas* or minor cereals.

(8) Carl Whiting Bishop in his "*Origin of far Eastern Civilizations: A Brief Hand-Book*" (Smithsonian Report, 1943, pages 463-512—publication 3758, Washington) makes the following remarks about

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1. In reply to a query from me about references to *Maise* in the datable old Gujarati literature Prof. B. J. Sandesara of Ahmedabad wrote to me on 24-10-1949 as follows :—

"I have been studying old Gujarati literature for the last 18 years but I am not aware of a reference to *Maise*. After I received your letter I just peeped into two unpublished old Gujarati works of the 17th Century, which mention hundreds of varieties of cooked preparations but even there I did not find the mention of any preparation of Maize. This does not, however, exhaust the possibility of finding references to Maize because Maize was and still is the staple food of the village population in the Pancha Mahals, Sabarkantha and several other districts of Gujarat. The fact that Maize was considered the food of the rustics may probably account for the paucity of its references in literature."

Maize, while dealing with the migrations of Tibeto-Burman peoples to Western China 1000 years before our Era in the upper Yangtze basin (under the Chou Dynasty) :—

"In extreme *Western China* the local culture also contained *elements from Northern India*. Similarly *culture traits passing through the region traversed by the now famous Burma Road* have gone on diffusing themselves from pre-historic times right down to the present day. To take a fairly *recent example* of this, *Maize*, or *Indian Corn, an American plant brought by the Portuguese to India during the sixteenth century lost little time reaching China by this route.* And the vital importance of the Burma Road to China today is well known to all."

(9) The cultivation of *Maize* in the Deccan about A. D. 1700 is proved by document *No. 283* dated *Śaka* 1629 (*Āṣāḍha*, Vadya 8) = **A. D. 1707** in the *Sources of Marāṭhā History*, Khaṇḍa 20 (page 413) published by the historian V. K. Rajawade. In this document (*mahajar)* the following extracts refer to the cutting and looting of Maize (*Makā*) crop and other crops from the fields of farmers :—

Page 413 —

"मौजे लाखगुणचा लिंगोजी पाटील याची मका राळा व सेत कापून कापून नेलें. खराबी जाली—कलम"	"नरसोजी पाटील कातर खटाऊ याच्या मळयांतुन राळा व नागली व मका चोरानीं कापून गेला."

Another undated document No. 175 (pertaining to the Chitrāva family of Wai in the Satara District) mentions "मकेची कणसें" (bunches or ears of maize seeds) — p. 232 (*ibid*).

(10) The cultivation of *Maize* (*Makā*) in the Deccan in the *17th Century* is proved by a list of octroi and tolls(जकातीचे दर) on food produce published by Sardar G. N. Mujumdar in the *B. I. S. Mandal Quarterly* Vol. XX p. 160. In this list we get the following references to bunches or ears of Maize seeds(मकेची कणसें) :—

—"मकेचे कणसे"

—"२३ प्रती मकेची कणसे कणसे व तरकारी वगैरे दर"

This list is not dated but it is said to belong to Shivji's times (*A. D. 1630—1680)*.

(11) In a MS of a medical work called the *Vaidyāvataṁsa* (No. 601 of 1899—1915) in the Govt. Mss Library at the B. O. R. Institute we get the following reference to *Makkā* (Maize) :—

Folio 12—

" मक्यावे कणिस गुणा :—

यावनालो महान् बल्यो दुर्जरो वातपित्तहृत् ।

रुच्यः संतर्पणो बालप्रियो मक्का सघृप्रपः ॥१२०॥ "

This verse is identical with the verse about *Makkā* recorded already by me from the anonymous *Nighaṇṭu* (MS in the Bhadkamkar Collection of the University of Bombay).

The author of the *Vaidyāvataṁsa* viz. Lolimbarāja was a native of Junnar (Poona District of the Bombay Presidency) who flourished *between c. A. D. 1575 and 1620* (Vide my paper on *Lolimbarāja and His Works* in *Indian Culture* (1941). Vol. VII, pages 327—333 and 447—456).

(12) The verse about the properties of *Makkā* or *Maize* viz. यावनालो महान् बल्यो.........समुद्भवः" is also found in a work on dietetics called *Bhojanakutūhala* by Raghunātha Gaṇeśa Navahasta who was an intimate friend of Saint Rāmadāsa of Mahārāṣṭra (A. D. 1608—1682) and who flourished *between c. A. D. 1640 and 1710* as I have proved in my papers[1] on this author and his works. In the first *Pariccheda* of the *Bhojanakutūhala* (MS No. 594 of 1899—1915) we get the above verse as follows on *folio 5* :—

"यावनालो महान् बल्यो दुर्जरो वातपित्तहृत् ।
रुच्यः संतर्पणो वातमियो मक्का समुद्भवाः ॥
॥ मक्का ॥"

A ms of the *1st Pariccheda* of the *Bhojanakutūhala* belonging to *Śamji Nayak Puṇḍe* (C. A. D. 1650—1685) is available in the MSS collection of the late Rājavaidya Shankarrao Jagtap of Kolhapur. In this contemporary MS we get the above verse about *Makā* (Maize) as follows :-

folio 5 —

"यावनालो महान्बल्यो दुर्जरो वातपित्तहृत् ।
॥ मक्का ॥

The above reference clearly proves that the term मक्का for Maize had become current in the Deccan in the middle of the 17th century, if not many years earlier.

(13) The Marathi Poet Rāmjośī (*A. D. 1762-1812*)[2] has given a description of a famine at the close of the Peshwa period (A. D. 1775—1800). In this description he refers to the high prices of food materials prevalent during the famine. A fragment of a bunch of Maize seeds

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1. Vide *Jour. of the Bombay University* (1941) N. S. Vol. X. Pt. 2. pp.132-140 ; *Annals* (B.O. R. I.). Vol. XXII (1942). pp. 254-263 ; *Jour. of Tanjore S.M. Library* (1942), Vol. III, No. 1. pp. 1-12 ; *Jour. of Bombay University* N. S. Vol. XIII, Part 2 (Sept. 1944), pp. 40-45 ; *Jour. of S. V. Ori. Institute* Tirupati (1944). Vol. V, No. 2, pp. 51-58.

2. Vide pp. 697-698 of *Madhyayugīna Caritrakoṣa* by S. Chitrao Shastri, Poona, 1937.

was sold for one pice ("पैशास मक्याचा कंद एक मोव्का") — see page 463 of *Maharaştra Sarasvata* or History of Marathi Literature by Bhave.

(14) Buchanan in his *Patna-Gaya Report (1811-1812)*, Vol. II (Published by Bihar and Orissa Reseach Society, Patna) refers to the cultivation of *Maize* in Bihar and its use as food in the following extracts :—

Page 498 — "near the Ganges *maize has been introduced* in its (Maruya's) stead and it is to be regretted that the *practice has not yet extended into the interior* as the produce of Maize is larger, and there can be no doubt, that the grain is better although as yet the natives give a higher price to *maruya*. This grain is chiefly used in unleavened *cakes* but is occasionally used into unboiled *puddings*. The straw is preserved for *fodder*. Next to *maruya, maize* is the culmiferous grain *most common in these districts but as yet it is confined almost entirely to the banks of the Ganges*. The *stems* both green and ripe are given to cattle, but the former only are thought good. *The natives are very fond of the grain*, when quite young, *parched in the cob*."

Page 670 — Exports and Imports.

"The *maize* and Janera come from *Tirhut* and *Sarun* and are sent mostly towardsBenares."

Page 636 — Common Artists.

"Those who *parch*[10] pulse and *maize* are called *Bharbhuna* or *Chabena furosh* and are much employed. They are all women many of them however young, and generally sit in the streets with a little fire-place parching for all the people in the neighbourhood and receiving a little of the grain from each. They may get in Patna 2 payasas a day but in other places they make less."

(15) Raghunatha Indraji alias Katabhat in his *Nighaţasamgraha* (Junagad, 1893) records the following verses[11] about *Maize* :—

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10. Among the grains used for parching by ancient Indians Maize is not mentioned (Vide my article on the *Use of fried grains* etc. in the *Annals* (B. O. R. Institute, Poona) Vol. XXIX pp. 43-63 (1949).

11. The source of these verses is not mentioned by Katabhat. The verses tell us that *Maize* has properties similar to those of *yavanala* (Holcus Sorghum) "यावनालसम: गुणैः— compare thedescription of Maize as "महान् यावनाल" (bigger variety of *yavanala*) given by the works (1) *Vaidyavatamsa* of Lolimbaraja and (2) *Bhojanakutuhala* of Raghunatha Ganesa Navahasta.

Page 580 —

"अथ मकाईनामगुणा ५७२
मकायस्तु महाकायो कटिजः कांडजः स्मृतः ।
शिखालुः संपुटांतस्य यावनाल-समो गुणैः ॥
॥ गुणाः ॥ महाकायस्तृप्तिकरः वातलः कफपित्तहृत् ।
विष्टंभजनको रूक्षः कोमलो रुचिपुष्टिकृत् ॥"

The names[12] for *Maize* recorded by Katābhaṭ are as follows :—

(1) *Sanskrit*—महाकायः and कटिधान्यम्.
(2) *Gujarati*—मकाई.
(3) *Marathi*—मुक्का.
(4) *Hindustani*—भुट्टा.
(5) *Persian*—बाजरी.
(6) *Varga*—प्रामिनेसी.
(7) *English*—Indian Corn ; Maize.
(8) *Latin*—Zia-Maize.
(9) *Tailangi*—जनपटलु

The foregoing notes on the history of *Maize* in India, Europe, and America confirm the opinion of Professors Reeves and Mangelsdorf that Maize was unknown to the old world before the discovery of America by Columbus in A. D. 1492. The evidence collected by me from Indian sources ranges from c. A. D. 1575 to 1900. It is worth while investigating and recording some evidence about the importation and cultivation of Maize in India between A. D 1500 and 1600. It is believed that the Spanish or Portuguese traders took Maize to India from Europe sometime before A. D. 1540. This belief gets support from the references to Maize by Lolimbarāja and Raghunātha Gaṇeśa Navahasta, who lived (between c. A D. 1575 and 1700) in the districts of Poona and Satara respectively. After the Portuguese advent in A. D. 1498 many foreign articles of commerce found their way to these districts of the Deccan. *Maize* must have been one of these articles like the *chillies, tobacco, guava, custard-apple, pine-apple* etc. which entered Indian agriculture and horticulture at this time and enriched Indian diet and cookery to such an extent that many of us hardly know that they are foreign importations.

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12. The historyofthese names for Maize should be studied by linguists. Like the herbalists of Europe and China Indian authors of medical *Nighaṇṭus* (Glossaries) tried to make their works up todate by adding all new acquisitions to the field of Indian agriculture and horticulture like the *maize, guava* etc.

33. Some notes on the History of the Fig (Ficus Carica) from Foreign and Indian Sources*

According to the history of the Fig (*Ficus Carica*) recorded in the *Encyclopaedia Britannica*,[1] it was probably one of the earliest objects of cultivation. Thre are frequent allusions to it in the Hebrew scriptures. According to Herodotus it may have been unknown to the Persians in the days of the First Cyrus. Pliny mentions varieties of figs and the plant played an important part in Latin myths. This history of the fig testifies to the high value set upon the fruit by the nations of antiquity but it says nothing about its early existence in India or its importation to the Indian provinces known to the Greeks and Romans.

According to Dr. AITCHISON[2] the Fig or *Ficus Carica* was "probably a native of Afghanistan and Persia"[3] and it is indigenous in the Badghis country and Eastern Persia. According to DE CANDOLLE[4] "the pre-

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* *New Indian Antiquary*, Vol. IV (1941), pp. 125-136.

1. Vide p. 228 of Vol. IX of the Fourteenth Edn. 1920. "From the ease with which the nutritious fruit can be preserved it wasprobably one of the earliest objectsof cultivation...... antiquity." I may note here the points in the para noted above :—

(1) Fig must have spread in remote ages over Agean and Levant ;

(2) May have been unknown to Persians in the days of the First Cyrus according to a passage in Herodotus ;

(3) Greeks received it from Caria (hence the name *Ficus Carica*) ;

(4) Fig, the chief article of sustenance for the Greeks—laws to regulate their exportation—Attic Figs celebrated throughout the East—improved under Helenic Culture ;

(5) Figs were used by the Spartans at their public tables ;

(6) Figs were used as food for theslaves in Rome ;

(7) Fig was held sacred to Bacchus—employed also in religious ceremonies—

2. Vide p. 347 of WATT : *Dictionary of Economic Products of India*, Vol. III. (Calcutta and London, 1890). WATT records the vernacular names of the Fig :—*Angir* (Hindi) ; *Angir* (Beng.) ; *Kimri*, *fagu*, *faguri*, *fagári* (PB) ; *Angir* (Bomb.) ; *Angir* (Guz.) ; *Anjura* or *Angjiiri* (Kan.) *Tie-thie* (Burm.) ; *Anglra* (Sans.) ; *Ten* (Arab); *Anjir* (Pers). Dealing with the HABITAT of the Fig he states that it is cultivated in many parts of India ; North West Provinces, Punjab, Western Himalayas, Sind, Baluchistan, Bombay, Madras, Burma, Andaman Islandsetc.

3. According to a passage in Herodotus the Figseems to have been unknown in the days of the First Cyrus (B.C. 559) asstated in the *Encyclopaedia Britannica*. Herodotus the Greek historian and the fatherof history was born in B. C. 484 at Halicarnassus, a Doric Colony in Caria—Vide p. 260 of *Smaller Classical Dictionary*, Ed. by E. H. BLAKENEY (London, 1913). Cyrus was killed in 529 B C. (p. 178 of Classl. Dictionary).

4. *Ibid*, p. 348.

historic area of the Fig tree covered the middle and Southern part of the Mediterranean basin from Syria to Canaries." He further mentions the fact that "leaves and even fruits of the wild *Ficus Carica* with teeth of *Elephas premigenius*, and leaves of plants, of which some no longer exist, and others like *Laurus Canariensis* which have survived in the Canaries" were found by PLANCHON in the quaternary tufa of Montpellier, and by DE SAPOTRA in those of Aygaledes near Marseilles and in the quaternary strata of La Celle near Paris. WATT records the use of the Fig in Medicine.[5] Alexander FAULKNER refers to Figs in his *Dictionary of Commercial Terms*[6] published in Bombay in 1856 but records no historical information in his note. Prof. H. P. PARANJPE[7] in his recent book on the cultivation of fruits states that Southern Arabia is the original home of the Fig. He further states that there are many varieties of the wild Fig in India but the Fig used for eating was unknown in India up to the 14th Century A. D.[8]

According to the recently published *Marathi Dictionary*[9] dried figs are said to be imported into India from Arabia. The usage of the word *Anjīr* recorded by this Dictionary is from a Sanskrit medical work the *Yoga-ratnākara*[10] which according to my evidence was composed in Mahārāṣṭra

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5. *Ibid.*, pp. 349—The dried fruit of the Fig is demulcent, emollient, nutritive and laxative. It is however, rarely employed medicinally.—Sometimes used for relieving constipation—usedalso as poultice toeffect suppuration—pulp of figs mixed with vinegar and sugar, useful in bronchitic affections inchildren—dryFigcontains 60 to 70 percent of grape and unripe fruit contains starch—Figs are prescribed in consumptive cases—The Arabians place figs in their *Mobehyats* or *Aphrodites* and *Muzijat* or *Suppurantia*—Smyrna figs are deemed the best.

6. Page56—The vernacularandother names of Fig as recorded by FAULKNER are :—(Arab)—*Teen* ; (Gujarati and Hindustani)—*Anjeer* ; (Persian)—*Anjeer* ; (Portuguese)—*Figos* ; (Sanskrit)—*Udumvara* ; (Tam.)—*Simi attie pullum*. (Tel.)—*Maydipondoo* ; (Cyngalese)—*Rata Attika* ; "This fruit of a small tree (*Ficus Carica*) indigenous to the temperate parts of Asia and now cultivated in the fertile islands of the Mediterranean, in Spain, Italy, France andGreece. An inferior description of dried Figs are largely imported into Bombay from thePersianGulf."

7. फळबाग, Poona, 1930, pp. 191-205.

8. *Ibid*, p. 191—"हिंदुस्थानात रानटी अंजीर पुष्कळ आहेत तरी खाण्याचा अंजीर चवदाव्या शतकापर्यंत माहीत नव्हता." As no authority is cited for this statement, I am unable to assess its exact historical value.

9. *Sabdakosa*, ed. by Y. R. DATE and C. G. KARVE, p. 517.

"अंजिर, अंजीर—योगरत्नाकर, १, ५२; वनौषधि—गुणादर्श १, १४ [सं. फा. अंजीर]
अंजिरो=पेअंग्यो ("सरसांबलि अंजिरो"—कयाकल्पतरु by कृष्णयाज्ञवल्क्य, ५.६.१३८)

10 Published in the *Anandasrama Sanskrit Series*, Poona, 1900, pp. 13-17—

अथ फल्वादिफल फल्गुफलगुणाः

"सुस्वादुपाकरसयोर्गुरु शीतलं च
श्लेष्मामवातकरमञ्जिरमग्निशाम् ॥७४॥"

between A. D. 1650 and 1720[11] or so. This work states the properties of the fruit under a section dealing with cereals, fruits, roots and vegetables but it quotes no earlier authoritative medical work for its statement.

Verthema is his *Travels*[12] (1502-1508 A. D.) states that he visited "Batha Cala" on *16th November 1504*. In describing this city which is "subject to the King of Narasinga" (Vijayanagar Empire) Verthema observes :—

> *Page* 49 —"We begin here to find nuts and FIGS after the manner of Calicut.........In this country no grain, barley or vegetables are produced but other most excellent fruits usual in India."

"Batha Cala" has been identified not with Bhatkal but with Sadāshivgarh within Karwar Head close to Anjediva Island. As this city was on the west coast the FIGS seen by Verthema in 1504 may have been imported dried figs (p. liii).

Figs and guavas appear to have been current at Poona about A.D. 1730 and A. D. 1789.[13] Baber in his *Memoirs* about 1525 A.D. refers to the fig.[14] In the *Munta-Khabu-i-Tawarikh*[15] "*Figs* of *Paradise*" are mentioned. Battuta in his Travels (C. A. D. 1326) refers to *figs* of Palestine and Syria.[16] According to Thakore Saheb of Gondal the FIG was newly added to the Indian Meteria Medica by Raja Madanapāla in his work called the *Madana-vinoda*[17] which was composed in A. D. 1374 and not after

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11. My paperon the *Date of the Yogaratnākara* was read before the Bharata Itihasa Sams. Mandal, Poona in June 1940. It will appear after sometime. The Anandashrama. Poona, has published 2 editions of this work, one in 1888 and other in 1900. There is also a Mysore Edition of the work, published in 1899.

12. Argonaut Press, London, 1928 (copy No. 486) p. 49.

13. Vide pp. 7 and 6 of पेशवाईचे सायंकाळ by N. G. CHAPEKAR, Poona, 1937—"अंजीर" and "पेरू" are referred to in the extracts from documents recorded by Mr. CHAPEKAR.

Vide also Letter No. 76 (*Peshwa Daftar Selection* No. 9) from Kashibai to her son Nana Saheb Peshwa. This letter was written between A. D. 1720 and 1740 and refers to *Figs* and Guavas as follows:—

"तुम्हाकारणे अंजीर सुमार ६ नव पाठविले आहेत हे घेणे तुम्हास अंजीराची आवडी असली तरी लेहुन पाठविणे. येथून थोडे बहुत पाठवीत जाऊन..." ..."तुम्हास केथे पेरू मिळत असिले (स) थोडे बहुत बालाघ पाठवीत जाणे." These references to अंजीर and पेरू seem to suggest that these fruits were articles of luxury at the Poona Court about A.D. 1730 and not so common as we find them to-day in the Poona market.

14. *Memoirs of Baber* (Edited by ERSKINE, 1826, p. 318—Baber referring to a "yellowish blue monkey from some islands" states that "its colour is somewhat like the colour of the FIG" *Page 326*—"It (Guler) resembles the FIG."

15. Vol. II (Translated by W. H. LOWE) p. 360.

16. Broadway Travellers, Edited by GIBB, 1929, p. 58. "From Tyre I went on to Sayda (Sidon) a pleasant town on the coast and rich in fruit; it exports FIGS, raisins, and olive oil to Cairo."

17. Vide p. 120 of *Aryan Medical Science*, London, 1896.

Bhavamiśra's *Bhāvaprakāśa* as stated by the Thakore Sahzb.[18] I have examined the MSS[19] of *Madanavinoda Nighaṇṭu* of Madanapāla of the Tāṅka race and find that they contain verses describing the propertiesof अंजीर or Fig, which may be recorded here :—

MS No. 110 of 1873-74, folio 21 (फलवर्गः षष्ठः)

"अंजीरं मंजुलं मेहं काक्कोदुंबरिका फलं ।
अंजीरं शीतलं स्वादु गुरुपित्ताश्रवातजित् ॥ १ ॥
तस्मादल्पगुणं ज्ञेयमंजीरं लघु तद्गुणैः ॥ २ ॥
अंजीर नाम॰ लोके" etc.

MS No. 459 *of 1895-98*, Folio 48 (षष्ठो वर्गः)—A.D. 1616.

"अंजीरं मंजुरं मेह काकोदुंबरिका फलं ।
अंजीरं शीतलं स्वादु गुरुपित्ताश्रवातजित् ॥
तस्मादल्पगुणं ज्ञेयमंजीरं लघु तद्गुणैः ॥ अंजीर ॥"[20]

MS No. 929 *of 1884-87*—(Folio 28)—A.D. 1705.

"अंजीरं मंजुलं मेहंकाकोदंबरिका फलं ।
भराजो जोरभद्राकस्ना मंजरिकास्तप्यो ॥ ६२ ॥
अंजीरः शीतलं स्वादु गुरुपित्तास्रवातजित् ॥ अंजीर ॥"

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18. *Bhāvaprakāśa* was composed about A. D. 1550 as stated by Thakore Saheb on p. 36 of *Aryan Medical Science*, while *Madanavinoda* was composed in A. D. 1374. (This date is recorded in the work itself, see Chronogram on folio 43 of B. O. R. Institute MS *No. 110 of 1873-74*). Thakore Saheb's statement "Bhāva Miśra is followed by Raja Madanapāla" is obviously incorrect asthe twoauthors are divided in point of chronology by no less than 200 years.

19. These MSS areavailable in the Government MSS Library at the B. O. R. Institute, Poona:—

(1) *No. 110of 1873-74* dated *Saṁvat 1855*=A.D. 1799 see *folio 21*.

(2) *No.109of 1873-74—Folio 26*—"अंजीरं लघु तद्गुणैः अंजीर नाम गुणाः"

(3) *No. 459 of 1895-99—dated Saṁvat 1672*=1616 see *folio 48* (षष्ठो वर्गः)

(4) *No. 929of 1884-87*—dated *Saṁvat 1761*=A.D. *1705* vide *folio 28*.

20. Bhāvamiśra (c. A.D. 1550) in his *Bhāvaprakāśa* (B. O. R. I. MS *No. 454 of 1881-82*, *folio 168*—आम्रादिवर्ग) repeats thelinesof Madanapāla (A.D. 1374) as follows:—

॥ अथ अंजीर ॥

"अंजीरं मेजलं मेह काकोदुंबरिका फलं ।
अजीरं सीतलं स्वादु गुरुपित्तास्रवातजित् ॥
तस्मादल्पगुणं ज्ञेयमंजीरं लघु तद्गुणैः ।
उदुंबरमेदो देशांतरे भवति ॥"

Though the verses quoted above are written incorrectly they are sufficient to prove the fact of the existence of the अंजीर or FIG about 1350 A.D. in Northern India where Raja Madanapāla ruled.[21]

Mr. R. D. KINJAVADEKAR in an Appendix to his recently published edition of the *Sūtrasthāna* of the *Aṣṭāṅga Saṁgraha*[22] has recorded some texts on the topic स्वस्थवृत्त. He quotes the following verse in which अञ्जीर is referred to :—

Page 198 —परिशिष्ट—२. पानकानि (drinks or beverages) चारोद्भवम्—पानकम्

"६६२—पथ्थाञ्जीर चुकाम्ल द्राक्षादाडिमजं तथा ।

एकैक सम्भवं भिन्नं पानकं क्रियते बुधैः ॥"

No indication of the source[23] or chronology of this verse has been given by Pt. KINJAVADEKAR.

In the *old Testament* of the *Bible*[24] we find references to FIGS brought unto Jerusalem on the Sabbath day. LIVY[25] the Latin Historian (59 B.C.—17 A.D.) refers to FIGS in the following quotation[26] :—

"*Ficus ficus,* ligonem ligonem vocal."

(He calls *figs figs* and spade a spade).

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21. The above extract is not found in a dated MS of the *Bhāvaprakāśa* (Saṁvat 1797 = A.D. 1741) where it ought to be found on folio 93b after अमृतफल and before पीलु. This MS is *No 901 of 1887-91*—Madanapāla is mentioned on folio 169.

22. Published by the Chitrashala Press, Poona, 1940. If the expression "पथ्थाञ्जीर" means "dried figs" we have reason to believe that the drink was prepared from the pulp of dried figs in the century to which the verse belongs. We have already noted that the dry fig contains 60 to 70 per cent of grape sugar and hence a drink prepared from it may taste more sweet and delicious.

23. I have traced the verse in the *Kṣema Kutūhala* of Kṣema Śarman composed about A D. 1548 ("बाणाकाशयुते नादे (बे ?) वत्सरे विक्रमांकिते"—folio 52 of MS *No. 887 of* 1887-91—B. O. R. Institute). On Folio 50 of this MS the verse reads as follows :—

"पथ्यांजीर काचुका द्राक्षादाडिमजं तथा ।

एकैकं संभवं भिन्नं पानकं क्रियते बुधैः ॥"

This verse is part of Chapter XII dealing with पानकs like नारंगफल पानक, अंजीर पानक, निंबूफल पानक, चारफल पानक etc.

24. *Holy Bible.* London, 1913, Page 561—*Nehemiah* Chapter. 13—"15. In those days saw I in Judah *some* treading wine presses on the Sabbath, and bringing in sheaves, and lading asses : as also wine, grapes, and FIGS, and all manner of burdens which they brought into Jerusalem on the sabbath days, and I testified *against them* in the day wherein they sold victuals".

In *Judges* IX olive, *fig* and wine are mentioned.

25. Vide p. 530 of *Dictionary of Foreign Phrases and Classical Quotations* by H. P. JONES, London, 1918. Livy or Livius is noted for his History of Rome (vide p. 310 of *Smaller Classical Dictionary,* 1913).

26. Ibid, p. 44 (Latin Quotations).

BREWER[27] records the usages of the *Fig* in English language and literature such as—

(1) *Fig Sunday—Palm-Sunday* is so called from the custom of eating *figs* on that day.

The practice arose from the Bible Story of Zaccheus who climbed up into a *fig* tree to see Jesus.

(2) *Fig-tree* —It is said that Judas hanged himself on a *fig-tree.*

(3) *Figs* — I shan't buy my *attic figs* in future but grow them. Don't count your chickens before they are hatched.

It was Xerxes who boasted that he did not intend any longer to buy his figs because he meant to conquer Attica and add it to his own empire but Xerxes met "a signal defeat at Salamis and never loosed his sandal till he reached Abdira."

(4) *"In the name of the Prophet, Figs"*—A burlesque of the solemn language employed in eastern common business of life. The line occurs in the imitation of Dr. JOHNSON'S pompous style in *Rejected Addresses* by James and Horace SMITH.

The references to the *Fig* recorded so far do not clear up the question as regards its early existence in or its importation into India before A.D. 1000 during definite periods of history. The word अंजीर now current for the "*Fig*" and used by Madanapāla of Northern India in A.D. 1374 is not a Sanskrit word as stated by WATT in his *Dictionay* or by the editors of the *Śabdakośa* who call it both Sanskrit and Persian. It is for linguists to record and prove its early usages from contemporary Indian sources. Obviously Madanapāla used this word as a loan-word in his verses quoted by me already.

The absence of systematic historical study of the present Indian flora and fauna leads to a hazy and incorrect knowledge of Indian culture resulting in anachronisms. This absence of historical knowledge coupled with the prevalent uncritical methods of editing texts is responsible for *Figs* appearing in a Mahābhārata passage along with other fruits like mangoes, pomegranates etc. which can claim much higher antiquity in Indian

27. *Dictionary of Phrase and Fable*, P. 460. See also p. 696 of *Shorter Oxford Dictionary*—

FIG—ME [OF—*figs, figue; L—ficus*]. In the East and West Indies the word Fig is applied to Banana also to the Cochineal Cactus (1582 A.D.); *Fig of Spain, Italian Fig* (A.D. 1691); The disease Ficus (pl.) (A.D. 1550).

—Vide p. 366 of BREWER'S *Reader's Hand book*, London, 1911. *'Figs of Holvan'*—Holvan is a stream of Persia and the Persians say its *figs* are not to be equalled in the whole of the world.

"Luscious as the figs of Holvan"—Saadi : Gulistan (13th Century).

—*Adam's Fig*=Plantain fruit. Vide Tavernier's *Travels in India*, London, 1889—Vol. I, p. 247 and Vol. II, pp. 4 n, 253, 283.

literature than their junior-most confrère the Fig (*Añjira*). In the Poona Edition of the *Mahabharata* (Vanaparvan) we find the following line[28] in which *Añjira* has been referred to :—

"पुन्नागकांस्तथाञ्जीरान् दाडिमान्बीजपूरकान्"

Evidently the MSS on the strength of which the above line was first edited must have been late copies prepared during a period of history when अंजीर became a common article of diet and hence the copyist without understanding the results of his tampering with the text introduced अंजीर in the Epic text. Thence forward it became a circulating joke and even in the Marathi translation of 1915 by no less a scholar than Pandit Appa Shastri RASHIVADEKAR गुलाब and अंजीर imperceptibly found their way unchallenged. These instances are sufficient to impress upon us the need for Critical Editions of Sanskrit texts and the Bhandarkar Oriental Research Institute will be thanked by all scholars not only of the present generation but of succeeding centuries for their herculean effort in the work of the Critical Edition of the *Mahabharata*. The B.O.R.I. constituted text[29] for the line in the Chitrashala edition referring to अंजीर reads as follows :-

"अजातकांस्तथा जीरान्दाडिमान्बीजपूरकान्"

It was by a curious coincidence that Dr. SUKTHANKAR informed me about his rejection of अंजीरान् from the line in question. While studying the references to अंजीर I inquired of him if he has come across any references to it in Sanskrit texts. In reply to this inquiry he drew my attention to the line in the Chitrashala Edition of the *Mahabharata* and his rejection of the reading अंजीरान् on the grounds of textual criticism. As Añjira is a loan-word in the Indian Vernaculars it is not found in early Sanskrit lexicons like the *Amarakośa*[30]. The earliest Indian Materia

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28. *Mahabharata* published by the Chitrashala Press, Poona, Vanaparvan, Vol. III, p. 247—यक्षयुद्धपर्व १५८.

In the Marathi translation of the *Mahabharata* (1915) by Pandit Appa Shastri RASHIVADEKAR we find "अंजीर, डाळिंब" etc. in the translation of theabove line on p. 320 of the Volume for *Vanaparvan*. He also translates "पाटलान् कुब्जान्" as "गुलाब, कुब्जे." It remains to be proved if अंजीर and गुलाब (Figs and Roses) were known to authors of the *Mahabharata* or to our ancestors of the Epic times.

29. Variants rejected by Dr. V.S. SUKTHANKAR, the General Editor of Mahābhārata are as follows : found on p. 519 of *Araṇyaka parvan* (B.O.R. Institute. Stanza 40 of यक्षयुद्धपर्व) III, 155, 40—

K_3 B.D. (D5 om तथाजीरा (DC ०था) न्)

T_2G_3 4 तथाऽजीरान्

30. The *Amarakosa* (Kāṇḍa II— वनौषधिवर्ग ४) mentions काकोदुम्बरिका : -

"काकोदुम्बरिका फल्गुर्मलपू (यू) र्जघनेफला ॥ ६१ ॥"

Bhānuji Dīkṣita in his comment. व्याख्यासुधा on *Amarakosa* explains :—"काकप्रिया उदुम्बरी... चत्वारि

Medica viz. the *DhanvantariNighaṇṭu*[31] which is said to be earlier than the *Amarakośa* contains no reference to *Añjīra*.

BERNIER (A.D. 1656-1668) in his *Travels* refers to the fruit imported into India[32] as also the variety of fruit sold in Delhi[33], but does not refer to *Añjīra* specifically though it is possible to suppose that dried figs may have been imported into India along with other dried fruit specified by Bernier in his remarks.

Mr. APTE in his *Sanskrit-English Dictionary* records the word अंजीरः-रं" as species of the fig-tree and its fruit but gives no usages of it, though he remarks that it is "perhaps a Persian word."

In a treatise[34] on dietetics by Raghunāthasūri composed about A.D. 1675

'मलय्वा' 'कटुम्बरी' इति ख्यातस्य." Madanapāla (A.D. 1374) appears to equate काकोदुम्बरिका फल with अंजीर perhaps on account of its similarity with अंजीर but Bhānuji Dīkṣita (c. 1630 A.D.) gives the current names काकोदुम्बरिका as 'मलय्वा' 'कटुम्बरी' and not अंजीर. The fruit of the उदुम्बर (Marathi उंबर) tree is not identical with अंजीर fruit. In the धन्वन्तरिनिघंटु and राजनिघंटु (pp. 186-187 of Anandashram Edn. 1896) the properties of उदुम्बर and काकोदुम्बरिका have been separately given—Sarvānanda (A.D. 1159) in his टीकासर्वस्व on Amara's line "काकोदुम्बरिका" observes :— 'काकोदुम्बरिकाफल्गु कोहाउम्बर इति ख्याते." (p. 116 of *Amarkośa*, edited by Ganapati SASTRI, Part I, 1911) क्षीरस्वामी in his commentary explains काकोदुम्बरिका as "काकप्रिया उदुम्बरी." Can कोहाउम्बर mentioned in A.D. 1159 by सर्वानंद be identical with अंजीर which Madanapāla mentions as "काकोदुम्बरिकाफल" in A.D. 1374 ?—*Pāiasaddamahaṇṇavo* (p. 296) mentions काउंबरी (काकोदुम्बरी) as वनस्पतिविशेष (उप.१०३१ टी. पण्ण ?)

31. Vide Intro. to *Kalpadrukośa*, Vol. I (Baroda, 1928) p. XLIX.

32. *Bernier's Travels*, Vol. I, pp. 203-204 of 1891 Edition, Constable and Co., London, *Cloves, nut-megs, cinnamon*, are supplied by the Dutch—Fresh fruit (from Samarkand, Balk (Balkh), Bocara and Persia) such as *melons, apples, pears, grapes*, eaten at Delhi during winter, also dried fruit such as *almonds pistachio* and other small *nuts, plums, apricots, raisins*.

33. *Ibid*, pp. 249, 250—The fruit market contains dry fruit from Persia, Balk, Bokara and Samarkand. Bernier mentions the following fruit :—*almonds, pistachios, walnuts, raisins, prunes, apricots*, also fresh *grapes* (black and white) brought wrapped in cotton, *pears* and *apples* of three or four sorts, *melons* and *water-melons*.

Ambas or *mangoes* are plentiful and cheap. The best come from Bengale, Golkonda and Goa.

(Cf. Edward MOOR : Narrative of Operations against Tipu Sultan, London. 1794—p. 506. MOOR refers to Mazgaon Mangoes, as finest grown in Bombay. *Goa* produces several fine species of this super-excellent fruit).

34. *Bhojana Kutūhala* (1st Pariccheda) MS *No. 594 of 1899-1915*. On folio 39A only the properties of औदुम्बर fruit are mentioned:

"औदुंबरं कषायस्स्यात् पक्वं तु मधुरं हिमं ।
कृमिकृत्पित्तरक्तघ्नं मूर्छादाहतृषापहम् ॥ उंबरें ॥"

many fruits are referred to but I fail to notice in this elaborate list any reference to *Añjīra* in the MS of the work before me.

The Marathi Encyclopædia called the *Jñānakośa*[35] (1924), Vol. IX devotes a paragraph to the history of *Añjīra* but the sources of this history are not indicated. Some points in this historical account may be noted here :—

(1) South Arabia is the native place of the *Añjīra*.
(2) The *Añjīra* may have migrated to other places from South Arabia.
(3) Archæological research has proved the cultivation of *Añjīra* thousands of years before the rule of the Greeks and Romans.
(4) Definite evidence regarding *Añjīra* is found in works dating 700 years before the Christian Era.
(5) It is from Arabia that *Añjīra* migrated to Rome, Greece, Ásia Minor, Italy, Portugal. France, Khorasan, Hirat, Afghanistan, China.
(6) There are many varieties of the wild *Añjīra* in India but the variety used in India for eating was unknown in this country up to the 14th century.
(7) Dried *Añjīrs* are imported into India from Smyrna in Asia Minor.
(8) *Añjīra* is called "इंगीर" in Asia Minor. The name *Añjīra* is possibly a corruption of "इंगीर."[36]

The history of *Añjīra* recorded in the *Jñānakośa* is practically the same as recorded by me from several other sources. It is for linguists to say whether the derivation of the word *Añjīra* from "इंगीर" given above is historically correct.

If *Añjīra* used for eating was unknown in India up to the 14th century as stated above it is impossible to find any references to it in Indian

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The *Kṣemakutūhala* of Kṣemaśarman (16th century) gives the use of काकोदुम्बर fruit in cooking :—
Folio 30 of *B.O.R.I.* MS *887 of 1887-91.*

"फलमौदुम्बरं बालमम्लतक्रे पचेत् स्वेदितम् ।
वेसवारभृते स्वाज्ये पाचितं सैंधवान्वितम् ॥
शीतं कषायमधुरं रक्तपित्तविनाशनम् ।
मूत्रकृच्छ्रहरं सम्यग्विबंधाध्मानकारकम् ॥"

35. Ed. by Dr. S. V. KETKAR, *Vol. IX, pp.* (अं ५०—५१)

36. Dr. KETKAR states that the cultivation of the *Añjīra* in Mahārāṣṭra is found in the Purandar taluka of the Poona District. Some foreign species of *Añjīra* are imported for cultivation into India but they have not fared well.

literature before A D. 1000, much less in the *Mahābhārata* times and consequently it is an anachronism to insert it in the text of the Great Epic as we find it in the Chitrashala Edition of the *Mahābhārata*. If any scholar succeeds in proving the existence of either imported or cultivated *Añjīra* on Indian soil before the Christian Era he will be justified in imagining its presence in the *Mahābhārata* text. So far I can see no a priori case made out in support of such insertion and I await more light in this matter from experts in the ancient Indian history and culture. For the present we must go by the text of the *Mahābhārata* purged of any references to *Añjīras* and *Gulābs*,[37] which are evidently late importations[38] into Indian history and culture. If *Añjīra* migrated from the Mediterranean region to Greece[39] and Rome and then to the Eastern countries like *Syria, Arabia, Persia* (and lastly *India*) its history (say between the 1st century A.D. and the 14th century A.D.) is closely connected with the cultural history of these nations and it is the business of the historians of these countries and their culture to record definite chronological evidence regarding such history from the literatures of these countries, to any knowledge of which I can lay no claim, I would, however, feel satisfied if any scholar takes the history of the *Añjīra* backwards from A D. 1300 say by at least 500 years on the strength of definitely dated evidence, preferably from Indian or Persian and Arabic sources.

The following chronological table would give at a glance the chronology of the *Añjīra* recorded in this paper :—

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37. I propose to publish a historical paper on the *Gulāb* in India in the near future.

38. Though contact of India with Greeks and Romans is a matter of known history there is absolute absence in Indian literature of any reference to the *Añjīra* in early works contemporaneous with the Greek and Roman history. In the study of Indian Plants and Animals known to the Greeks published in the *Indian Antiquary*, (Vol. XIV) 1885, pp. 274 ff. no reference is found to any species of the *Fig*, either wild or cultivated. Only *Pipal* tree seems to have been known to the Greeks. Though Prof. Franklin EDGERTON has found a reference to the city of Rome in the Sabhāparvan of the *Mahābhārata* (*JAOS, Vol.58, pp.* 262-265) no case has been made out for *Añjīra* in the *Mahābhārata* either on textual or historical grounds. *Roma* is included among the cities conquered by Sahadeva (Sabhāparvan Book 2).

39. A. K. NAIRNE (*Flowering Plants of Western India*, London, 1894, pp. 304 ff.) deals with *Fig* and its Species which include *Vaḍ, Pipal. Kal-umbar* (काळोदुंबरिका ?) and *Anjir* (*Ficus Carica*—p. 303). He gives the following reference to the *Fig* in Book 8 of *Odyssey* :—

"There (in the garden of Alcinous) grow tall trees blossoming, pear trees, and pomegranates and apple trees with bright fruit, and sweet FIGS and olives in their bloom." Nairne further observes :—

"The figs grown in India must be placed far below those of England, and these again are in flavour nowhere near the Italian figs ; but the scientific cultivation of fruit in India must come in time."

Chronology	*Particulars* (F = *Añjīra*)
	Pre-historic evidence about leaves and fruits of wild F (Ficus Carica) in quaternary strata near Paris and Marseilles.
1000 B.C. or about 850 B.C.	Homer refers to F in *Odyssey*.
„ 559 B.C.	F unknown to Persians according to Herodotus.
„ 484 B.C.	Birth of Herodotus, who refers to F.
B.C. 485–465 B.C.	Xerxes, King of Persia with whom *Attic Figs* are associated.
From about 330 B.C. upto 160 B.C.	References to F in the *Old Testament* of the *Holy Bible*.
59 B.C.—17 A.D.	Livy, the Latin historian refers to F.
A.D. 23–79	Pliny, the Roman author, refers to the varieties of F.
Between A.D. 200 and 800	In the Pahlvi[40] work *Nirangastān* "juice of *figs*" is mentioned.
A.D. 1250	Figs of Holvan in Persia referred to by Saddi in *Gulistan*.
A.D. 1326	Batutta refers to figs in Palestine and Syria.
A.D. 1374	Reference to F in the *Madanavinoda Nighaṇṭu* of Madanapāla.
A.D. 1504	F on the west-coast mentioned by Verthema, the Italian traveller.
about 1526 A.D.	Baber's reference to F.
„ 1548 A.D.	F referred to in the *Kṣemakutūhala* of *Kṣemaśarma*.
„ 1550 A.D.	F referred to by Bhāvamiśra in *Bhāvaprakāśa*.
„ 1691 A.D.	*Figs* of Spain and Italy referred to.
„ C. 1730 A.D.	*Figs* sent to Nanasahib Peshwa by his mother Kashibai.
„ 1789 A.D.	F mentioned in the Peshwa period (at Poona).

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40. Vide p. 353 of *Aērpatastān and Nirangastān* Eng. Trans. by S. J. BULSARA, Bombay, 1913. My friend Mr. M. F. KANGA of Bombay informs me that the word *Añjīra* does not occur in Avesta literature. It is found in the Pahlvi language and literature, which flourished from 3rd to 9th century A.D. (Vide pp. 293-297 of *History of Zoroastrianism* by M. N. DHALLA, Oxford Uni. Press, 1938). Detailed Chronology of Pahlvi references to the FIG must be reserved for a separate study by Parsi scholars themselves as I have no first-hand knowledge of their sacred texts and other early literature.

P.S.—Studies bearing on the history of Indian culture require the cooperation of experts in the different branches of Indology. I am, therefore, extremely, thankful to my friend Khan Bahadur Prof. SHAIKH Abdul-Kadir-e-Sarfaraz, M.A., I.E.S. (Retd.), for the following note on the history of the Fig, which was received by me after the composing of my paper by the press. This note fills in a gap in my Chronology for the Fig and thus enriches my present paper :—

1. MOLESWORTH says the word is Sanskrit or Persian.

2. In Persian (post-Islamic) the word is undoubtedly extensively used from very old times to modern. Sadi (XIII c.) used it ; Nizami (XII) used it several times. Two forms of the word seem to have been in use "Anjir" and "Anjirah." There is an infinitive also, "Anjir-dan," which means 'to bore a hole, drill, perforate." The word occurs in several compounds also, such as "Anjir-e-Adam," or Anjir-e-Dashti," i.e. 'Adam's Fig,' which is our 'Udumber,' glomerous fig ; "Bed-anjir," which is Palma Christi, or our 'Erand.' Long descriptions of the principal varieties of Anjir, the properties and the medicinal use of it are given in Persian Pharmacopœias and medical books. Three principal varieties are mentioned : *Barri*, which grows in plains, *Kohi*, which grows on mountains, and *Bustani*, which grows in gardens. Another variety called "Shahi," 'Royal' is said to be specially delicious and quite suitable for eating ; the blackish variety is generally used in medicine.

3. The home is said to be Syria or Asia Minor.

4. In pre-Islamic Persian or Pahlavi the word for "Fig" is not "Anjir" but "Tin."

5. In Arabic the word for "Fig" is "Tin." It is used in the Qur'an, only once. There is a chapter of the Qur'an, the 95th, which is entitled "The Fig," because it begins with the words "By the Fig." The commentators say that God swears by the fig, because "it is wholesome and of easy digestion, and physically good to carry off phlegm, and gravel in the kidneys, or bladder, and to remove obstructions of the liver and spleen, and also cures the piles, and the gout etc." (SALE's Transl.) The word "Fig" is also held symbolical, but there is a good deal of difference of opinion about the exact interpretation thereof. Some take it to stand for the Jewish or Mosaic dispensation which was to wither away like the Fig-tree in the Gospel ; others say that it may stand for man's destiny. The word "Tin" used in the Qur'an and the Arabic literature was well-known in Pre-Islamic Arabia. It is generally taken to be Arabic, but according to some (Western) scholars borrowed from Akkadian "tittu," "tintu."

6. The word "Fig" occurs in the Bible in a number of places. See any concordance. In Mathew e.g., 20. 1, Jesus is said to arrive at a place called Beth-Phage, which literally means "the house of figs." It is stated in the Bible that when Adam discovered his nakedness in the garden of Paradise, or Eden, he sewed *fig* leaves and made aprons. Now this garden of Eden or Paradise, according to Higher criticism is located generally on the banks of the Euphrates and the Tigris.

7. The fig is said to have been introduced in England by Cardinal Pole (1500–58).

34. Some Notes on the History of the Fig — Does the word "Phalgu, used by Caraka and Suśruta mean "Añjīra" ? •

In my paper[1] on the History of the Fig I have recorded evidence which suggests that the FIG (*Ficus Carica*) migrated to India very late, the earliest reference to it as "*Añjīra*" being found in a Sanskrit *materia medica* of A.D. 1374. The term "*Añjīra*" for the FIG is evidently a loan word from the Persian, where it is found in the Post-Islamic Persian.[2] The word TIN for the FIG as used in the *Qur'ān* is Arabic and according to some Western scholars it is borrowed from Akkadian "*tittu*", "*tintu*."[3]

The above evidence raises the question: Is there any word in Sanskrit for *Añjīra* or *Tin* or *Ficus Carica*? I have not been able to trace any Sanskrit equivalents to the names of the Fig used in Persian, Arabic and Latin. Recently while reading a Marathi translation[4] of the celebrated medical work *Suśrutasaṁhitā* in Sanskrit I found that the translator had translated the Sanskrit term *Phalgu*[5] by the term *Añjīra*. This translation led me to examine the question further and I note below some evidence which suggests that the word *Phalgu* used in the *Phalavarga* of the *Suśrutasaṁhitā* cannot be identified with the *Añjīra* fruit.

Vāgbhaṭa I—(7th century A D.) in his celebrated work *Aṣṭāṅgasaṁgraha*[6] uses the word *Phalgu* in the following verse :—

"सौवीरबदराङ्कोलफल्गुश्लेष्मातकोद्भवम् ॥ १६६ ॥"

Indu's commentary on the above line[7] reads as follows:—

"मोचादिप्रियाकानां बृंहणत्वादिगुणयुक्तम्"

• *Indian Historical Quarterly*, Vol. XIX, pp. 62-65.

1. *NewIndian Antiquary*, July 1941, pp. 125-136.
2. *Ibid*. p. 136.
3. *Ibid*.
4. *Sartha Susruta Saṁhitā* by Vaidya Kṛṣṇaśāstri Phadke, Bombay, 1921 (Part 1).
5. *Ibid*., p. 435—*Sūtrasthana*, ch. 46 "क्षीरवृक्ष... स फल्गुफलं ..प्रयुक्तानि" ॥१६३ ॥ (फल्गु= अंजीर trans.)

p.436—"विष्टम्भि मधुरं स्निग्धं फल्गुजं तर्पणं गुरु" ॥ १८१ ॥

(Trans. "अंजीर मलावरोध करणारे, मधुर, स्निग्ध, पुष्टी देणारे व गुरु असा आहे")

6. Ed. with Indu's Comm. *Śaśilekhā* by Pt. Ramachandra Śāstri Kinjavadekar, Chitra Shala Press, Poona, *Sūtrasthana*, (1940).
7. *Ibid*., p. 62.

In this explanation we miss the explanation of the word *Phalgu* but Mr. R. D. Kinjavadekar in his Sanskrit notes on the line observes :—

"फल्गुः काकोदुम्बरिका स्वनामख्यातः खरपत्रो वृक्षविशेषः (काळा उंबर) अत्र केचन फल्गु-शब्देन रामोदुम्बरिकाफलम् (अंजीर) इत्याहुः ।"

This explanation[8] shows that a belief exists among the modern Vaidyas that the word *Phalgu* means *Añjīra*, and Vaidya Phadke's equation *Phalgu* = *Añjīra*" in the *Suśrutasaṁhitā* is evidently on the lines of this belief. We must, therefore, see if this belief is warranted by the earliest explanation of the word *Phalgu* occurring in Sanskrit medical works or elsewhere.

In the *Aṣṭāṅgahṛdaya*[9] of Vāgbhaṭa II (8th or 9th century A.D.) the line[10] from the *Aṣṭāṅgasaṁgraha* is obviously repeated as follows:—

"सौवीरबदरांकोलफल्गुश्लेष्मातकोद्भवम्"

The commentators Aruṇadatta (*c.* A.D. *1220*) and Hemādri (*c. 1260* A.D.) explain[11] the word as "फल्गुः—काकोदुम्बरिका." In footnote 30 of my paper[12] on the History of the Fig I have recorded the following facts:—

(1) *A.D. 1374* —Madanapāla refers to *Añjīra* in the line:—
"अंजीरं मधुरं मेहं काकोदुंबरिकाफलम्"

(2) Madanapāla appears to equate the fruit काकोदुंबरिका with अंजीर perhaps on account of the similarity of the latter with the former.

(3) *Amarakośa* (before 8th cent. A.D.) uses the word *Phalgu* in the following line :—
"काकोदुम्बरिका फल्गुर्मलपू(यू)र्जघनेफला"

(4) Bhānuji Dīkṣita (*c. A.D. 1630*) explains the above line from the *Amarakośa* as :—
"काकप्रिया उदुम्बरो...चत्वारि 'मलरवा' 'कदुम्बरी' इति ख्यातस्य"

(5) Sarvānanda (*A.D. 1159*) comments on the above line :—
"काकोदुम्बरिकाचतुष्कं कोल्हुम्बर इति ख्याते"

It would appear from all these explanations that the word *Phalgu* used by the *Suśrutasaṁhitā* and repeated by Vāgbhaṭa I and Vāgbhaṭa II in their treatisesmeans औदुम्बर or its variety काकोदुम्बरिका with which later

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8. *Ibid.*

9. Ed by Hari Shastri Paradkar, N. S. Press, Bombay, 1939 (with my English Introduction dealing with Vāgbhaṭa II and his Commentators).

10. *Ibid.*, p. 110—*Sūtrasthāna*—"अन्नस्वरूपविज्ञानीयः अध्यायः ६"

11. *Ibid.*, pp. 110, 111.

12. *New Ind. Ant.*, July 1941, pp. 131-132.

Madanapāla (in A. D. 1374) possibly identifies the term अंजोर. The explanation of Madanapāla being a very late one can have no determining force in equating *Phalgu* with *Añjīra* as our Vaidyas are inclined to do at present. This view of mine is further substantiated by the following evidence :—

The *Caraka Saṁhitā*[13], the earliest known medical text uses the word *Phalgu* in the following line :—

"तर्पणं बृंहणं फल्गु गुरु विष्टम्भि शीतलम्"

Cakrapāṇidatta (*c.* 1060 A.D.) explains the word *Phalgu* as "*Audumbara*." In view of this explanation of the earliest commentator on the earliest medical treatise of *Caraka* I am inclined to believe—

(1) that the word *Phalgu* used by Caraka, Suśruta, Vāgbhaṭa I, Vāgbhaṭa II means "*Audumbara*" fruit as stated by Cakrapāṇidatta (c. 1060 A.D.) and

(2) that it may have been used for a variety of the "*Audumbara*" fruit called by the names काकोदुंबरिका, कोष्ठउंबर, काउम्बरो, कदुम्बरी. When *Añjīra* got naturalized in India people may have called it by these names perhaps on account of its similarity with the Añjīra. If काकोदुंबरिका is identical with "काळा उंबर" a *black audumbara* as suggested by R.D. Kinjavadekar we may be able to account for the name काकोदुम्बरिका for *Añjīra* mentioned in the work of Madanapāla in A. D. 1374. Prof. Shaikh[14] mentions some varieties of Añjīra which include "a *blackish variety generally used in medicine*". Perhaps this blackish variety may have been used for medical purposes in India in Madanapāla's time and hence it may have been confounded with काकोदुम्बरिका or a blackish variety of the *Audumbara* fruit mentioned in the *Amarakośa*.

In view of the foregoing discussion I find it difficult to equate *Phalgu* of the *Carakasaṁhitā* and the *Suśrutasaṁhitā* with *Añjīra*. For the present I am inclined to accept the explanation of Cakrapāṇidatta (*c.* A.D. 1060) that *Phalgu* in the *Carakasaṁhitā* means "*audumbara*". The medical glossary *Dhanvantarinighaṇṭu* which is earlier than the *Amarakośa* contains no reference to *Añjīra* but on the contrary the properties of the "*audumbara*" and "*Kākodumbarikā*" are separately given in it.

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13. *Carakasaṁhitā*, N. S. Press, Bombay, 1922, p. 156.
14. *NIA.*, July 1941, p. 136.

In a paper contributed by me to the Proceedings of the Indian History Congress (Hyderabad) I have pointed out that Bindusāra, the father of Emperor Aśoka ordered some figs and raisin wine from Antiochus Soter, the then king of Syria.[15] These figs were sent to Bindusāra by his Syrian ally. Bindusāra came to the throne in B.C. 298, while Antiochus died in B.C. 261. In view of this interest of Indians in the *figs* as early as 3rd century B.C., one wonders why the Añjīra or *Fig* appears very late in Indian literature. Is it possible to find any evidence in Indian sources about at least *imported figs*, if not those cultivated on Indian soil? Any evidence bearing on this question from Indian sources between say B.C. 100 and A.D. 1000 is eagerly awaited by me from scholars working in the field of the early history of Indian culture.

15. V. Smith, *Early History of India*, (Oxford, 1914), p. 147.

35. Early Indian Interest in Syrian Figs in the 3rd Century B.C. contrasted with their late Cultivation in the Deccan in the 17th Century A.D.*

In my recent paper[1] on the history of the Fig (Ficuscarica) from about 1000 B.C. to A.D. 1800 from foreign and Indian sources the earliest dated reference to *Fig* or *Anjira* in Sanskrit texts recorded by me is of A.D. 1374. No earlier reference could be found by me. It is, therefore, necessary to record any evidence regarding the knowledge of the Fig that could be ascribed to Indians on the strength of Indian or foreign evidence regarding the early Indian contact with Greece and Rome. While discussing this question with my friend Dr. P. V. Bapat, M.A., Ph. D. of the Fergusson College, Poona, I inquired of him if he could give me any reference to the Fig in early Buddhist literature. Though he could not point to any such evidence in the Buddhist records he invited my attention to a passage in the *Early History of India*[2] by Vincent Smith according to which Antiochus Soter[3], the king of Syria, forwarded some *Figs* to king Bindusāra (298 B.C.). These figs were sent to this Indian monarch in response to his own request about (1) *Figs*, (2) *raisin wine* and (3) *a professor*. As the evidence recorded by Smith has a direct bearing on the history of the Fig I quote it below :—"The anecdote concerning the correspondence between Antiochus and Bindusāra although trivial in itself is worth quoting as a tangible proof of the familiar intercourse between the sovereign of India and his ally in Western Asia. Nothing we are told being sweeter than the figs, Bindusār begged Antiochus to send him some *figs* and *raisin wine* and added that he would like him also to buy and send a professor. Antiochus replied that he had much pleasure in forwarding the *figs* and *raisinwine* but regretted that he

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**Proceedings of Indian History Congress* (Fifth Session), 1941.

1. Vide pp. 125—136 of *New Indian Antiquary*, Vol. IV (July 1941 issue).

2. Third Edition, Oxford, 1914, p. 147.

3. *Ibid.* p. 220, footnote 1 "Antiochus Soter died between July 262 and July 261 (B.C.) at the age of sixty four." According to *Smaller Classical Dictionary* (ed. F. H. Blakeney), London, 1913, p. 47, this king of Syria reigned from B. C. 280 to 261. He was the son of Seleucus I, the founder of the Syrian kingdom. He married his step mother with whom he fell violently in love and whom his father surrendered to him. He fell in battle against the Gauls in B. C. 261.

could not oblige his correspondent with the last named article because it was not lawful for Greeks to sell a *professor*."

The above passage makes amusing reading. Obviously the Greek professors were not marketable commodities like figs and raisin wine in those days! If *figs* from Western Asia were known to Bindusāra in the 3rd century B.C. one wonders how their cultivation on Indian soil took more than 1500 years to be effected. Then again one is curious to know why any appellations of the *Fig* have not been preserved in Sanskrit or Prakrit literature between say B.C. 298 and A.D. 1200. Whatever be the reasons *for the absence of* the *fig* in Indian sources before A.D. 1000. Bindusāra's interest in a Greek professor and figs in the 3rd century B.C. has a distinct place in any history of the *Fig*, whether imported from foreign countries or cultivated on Indian soil. Bindusāra was the son of the celebrated Maurya Emperor Candragupta and father of Aśoka Maurya. It is, therefore, possible to presume that even during the time of Cāṇakya, minister of Candragupta, imported figs may have been known in India though in the Arthaśāstra of Cāṇakya one fails to notice any reference to the figs.[1]

According to Smith the Deccan or Peninsular India must have been subjugated by either Candragupta or Bindusāra. Now a sovereign who ruled over the Deccan in the 3rd Century B.C. had sufficient knowledge of the foreign *figs* to enable him to order a few of these *figs* from his ally in Western Asia; but it is a curious contrast with this fact that we find ourselves in difficulties as regards the exact or approximate chronology of the cultivation of the *fig* trees in the Deccan. In this connection I have already recorded a reference of c. A. D. 1730 when the mother of Nana Sahib Peshwa of Poona procured for him nine *figs*. This reference shows the rarity of this fruit at that time in the Deccan. Since recording the above evidence I have come across a reference to *Anjīra plants* in a Marathi work[2] called "*Pustaka Mestaka*" which according to Mr.

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1. In Chapter XV of *Arthaśāstra* Trans. by Shamasastry, (1929) the following fruits are referred to:—grapes, *Jambu*, jack fruit, *Carbhita*, cucumber, mango, *Karamarda*, *Vidatamalaka*, *Matulunga*, *Kola*, *Badara*, *Sauvīra*, *Parushaka* (p. 101). Chap. XVII deals with Forest Produce but fruits are not specified. Kauṭilya only remarks "Bulbous roots and *Fruits* are the group of medicines" (p. 108). Chap. XXIV on Agriculture refers to *Fruits* like *Valliphala* (pumpkin, gourd and the like), grape. Chap. XXV (on liquor)—"Fruit of Putraka" (p. 132). grapes, mango, (*Sahakara*), *Phalamla* (acid drink) from Fruits (p. 134). Chap. XI—"Mangofruit" (p.79). Matulinga (p. 80).

2. B. I. S. Mandal, *Itivṛtta* (?), pp. 27-56.

Rajawade, the Maharashtra historian was composed during the reign of Rajaram Chatrapati (A. D. 1689-1700).[1] This inference is in keeping with the date of the MS of the work viz. *Śaka* 1667-A. D. 1745. The MS was found at Masur in the Satara District of the Bombay Presidency. This work gives a list of trees to be recorded by the village official in his books. In this list[2] I find a mention of *Añjīra* tree along with other trees of economic value to government. If Rajawade's inference about the date of the the work is correct we have reason to believe that *figs* had come to be cultivated in the Deccan before say A. D. 1690. Their economic value to government naturally led to the *Anjīra* plant being included in the list of cultivated plants, which the village official was required to maintain possibly under the orders of the then government. If in northern India Raja Madanapāla ruling on the bank of the Jumna in A. D. 1374 refers to the properties of *Anjīra* in his *Materia Medica* called the *Madanavinodanighaṇṭu*, we find in the Deccan a Marathi writer of c. A. D. 1690 recording the *Anjīra* plant among plants of economic value to government. Further references to the cultivation of the *fig* or *Anjīra* in Indian provinces need to be recorded from Indian Vernacular sources, if possible. In spite of the sweetness and delicious nature of the fruit the *Anjīra* had a very slow course in its cultivation on Indian soil, unlike tobacco, which within 50 years of its advent in India between A. D. 1600 and 1650 was cultivated in the Deccan in abundance. In fact the Bijapur Sultans had a regular Tobacco Department with a special Officer in charge of it. As Antiochus was the king of Syria between B. C. 280 and 261 the reputation of figs in Syria must have been sufficiently great to attract the attention of his contemporary Bindusāra, the then sovereign of India. The despatch of Syrian figs to India in the 3rd Century B. C. is in harmony with the references to figs in the *Old Testament* of the Bible (say between 330 to 160 B.C.). It would, therefore, be useful to investigate if any sculptures of the Indo-Greek period of Indian history contain any representation of the fig plant, its leaves or fruit; but, I leave this problem to the students of Indian Archaeology and sculpture for the present.

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1. *Ibid.*, p. 27.

2. *Ibid.* p. 30. This is a fine list of fruit bearing and other plants, that were grown in the Deccan when the work was composed.

36. Some Notes on the History of Candana (Sandal) in general and of śveta-candana (white sandal) in particular— Between B.C. 500 and 900 A.D.*

Yule and Burnell make the following remarks on *Sandal* (*Candana*) in their *Hobson—Jobson* (London, 1903, pp, 789-790) :—

"SANDAL, SANDLE, SANDERS, SANDAL-WOOD — s. From Low Latin Santalum......coming from the Arab. *Sandal* and that from Skt. *Chandana*. The name properly belongs to the fragrant wood of the *Santalum album* L. Three woods bearing the name *Santalum*, WHITE, YELLOW and RED were in official use in the middle ages. But the name red Sandal-wcod or Red Sanders has been long applied, both in English and Indian vernaculars to the wood of *Pterocarpus santalina*, L. a tree of South India, the wood of which is inodorous but which is valued for various purposes in India (pillars turning etc.) and is exported as a dye-wood. According to Hanbury and Flückiger this last was the *Sanders* so much used in the cookery of the middle ages for colouring sauces etc. In the opinion of those authorities it is doubtful whether the red sandal of the mediæval pharmacologists was a kind of the real odorous sandal-wood, or was a wood of *Pteroc. Santal*. It is possible that sometimes the one and sometimes the other was meant. For on the one hand, even in modern times we find Millburn (see below) speaking of the three colours of the real sandal-wood ; and on the other hand we find Matthioli in the 16th century speaking of the red sandal as inodorous.

It has been a question how the *Pterocarpus santalina* came to be called sandal-wood at all. We may suggest as a possible origin of this, the fact that its powder "mixed with oil is used for bathing and purifying the skin." (*Drury* s. v.), much as the true sandal-wood powder also is used in the East."

The following usages of "*Sandal*" are next recorded in the *Hobson—Jobson* :—

c. A.D. 545 — "*Sandalwood*" (*Cosmos* in *Cathay* etc.)

A.D. 1298 —"*Sandal*" (*Marco Polo*. Geog. Text ch. exci).

c. A.D. 1390 — "......colour it with *Saunders*" (Wright, *Domestic Manners*, etc. 350).

A.D. 1554 — "*Santal*" (*Matthioli*—old Fr. version—liv. i. ch. xix).

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* *New Indian Antiquary*, Vol. VIII (1946), pp. 157-182.

A.D. 1563 — "*Sandal* grows about Timor which produces the largest quantity and it is called Chundana and by this name it is known in all the regions about Malaca, and the Arabs being those who carried on the trade of those parts, corrupted the word and called it *Sandal*. Every Moor whatever his nation calls it thus......" (*Gracia*, fol. 185 v.).

A.D. 1584 — "*Sandals*" from Cochin and Malacca (*Wm. Barret* in Hakl. ii. 412).

A.D. 1613 -- "*Sandal* trade" (*Bocarro*, Decada, 723).

A.D. 1615 — "*Sanders-wood*" (*Samsbury*, i. 380).

A.D. 1813 — "*Sandal*" (red, yellow and white shades of the same colour, *Milburn*, i, 291).

A.D. 1825 — "Red *Saunders*" (from Coromandel coast imported to England for dying)—(*Milburn*, ed. 1825, p. 249).

The foregoing chronology for *Sandal* from foreign sources clearly shows the reputation of *Candana* among foreigners for about 1500 years. I may add to the above references the following remarks of Nairne (285 of *Flowering Plants of Western India*, 1894) :—

Santalum album—

"..........habitat from Poona southwards, elsewhere planted. The Abbé Raynal describes it under the unromantic name of the *Sanders* tree. Some authorities consider that the *algum* or *almug* tree (1 Kings X. 11 ; 2 Chron. ii. 8 etc.) was the *Sandal* (*Dictionary of the Bible*) but Hooker thinks it was probably either *Pterocarpus Santalimus*, or Bombay blackwood (*Teachers' Bible*). The ancient Hindoos had no liking for the tree.[1] Sir M. Williams quotes from the "*Hitopadeśa*" : "The root is infested by serpents, the blossoms by bees, the branches by monkeys, the summit by bears. In short there is not a part of the Sandal tree that is not occupied by the vilest impurities."

The chronology of the *Chandana*[2] in its cultural perspective can be easily recorded on the strength of extant texts, Jain, Buddhist and Brahmanical. We must, however, study in detail the varieties of *candana*

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1. This remark is contradicted by the evidenceabout the popularity of the *Candana* tree and its products in India for more than 2000 years. What the *rose* was to the Persians, the *Candana* was to the Indians, as vouched by the literatureof Persia and India.

2. The Paharpur Copper-plate inscription of A.D. 478-9 mentions "Sandal", incense etc. as requisites for Jaina Arhats (see p. 73 of *Jaina Antiquary*, Jan. 1947 and *Epi. Indica* XXII, 63-4 and *B. C. Law Vol* II, pp. 252-3). This inscription is of the *Gupta* year 159.

known to ancient Indians and their products used in the domestic and court life of our ancestors through successive centuries of Indian civilization. With a view to facilitating such a study I note below a few references which will indicate the landmarks in the history of the *candana* plant in India :—

(1) In the list of *Vedic Plants* recorded by Dr. G. P. Majumdar (*B. C. Law Volume, I*, 1945, pp. 645-668) no reference to *candana* is found, though he records some other fragrant plants like—*Aukṣagandhī* (A. V. iv, 37, 3) mentioned along with *Guggulu* and *Naladī* ; *Kuṣṭha* (A. V. v, 4 etc) ; *Pīlā* (A. V. iv, 37, 3 ; *Pramuṇḍanī* (*Kauś. Sūtra*, viii, 17 etc.) a sweet-scented plant, etc.

(2) The word *candana* is found in the following Upaniṣads :—

(i) *Vāsudeva Upaniṣad*, (ii) *Gopīcandana Upa.* and (iii) *Rāma-pūrvatāpanī*, (see Jacob's Concordance, Bombay, 1891, p. 352).

The references recorded by Jacob do not mention any variety of *candana* as such. The *Vāsudeva Upa.* mentions *kuṅkuma* along with *candana*. The *Bhagavadgītā* contains no reference to *candana* (see *Bhagavadgītā Word-Index* by P. C. Diwanji, Bombay 1946).

(3) The *Arthaśāstra* of Kauṭilya contains detailed observations about *candana* in Ch. XI of Book II (p. 79 of Eng. Trans. by Shama Sastry, 1929) :—

"(As to) *candana* (sandal) :

Sātana is *red* and smells like the earth[3] ; *Gośīrṣaka* is *dark-red* and smellslike fish ; *Haricandana* is of the *colour of the feathers of a parrot* and smells like tamarind or mango fruit ; likewise *Tārṇasa*[4] ; *Grāmeruka* is *red* or *dark-red* and smells like the urine of a goat ; *Daivasabheya* is *red* and smells like a lotus flower , likewise *Aupaka* (*Jāpaka*) ; *Jongaka*[5] and *Taurūpa*[6] are *red* or *dark-red* and soft ; *Māleyaka*[7] is *reddish white* ;

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3. Like the smell of the earth when rain water falls upon it — *Com.*

4. This is of the colour of the feathers of a parrot and of sour smell — *Com.*

5 Product of the country of Kāmarūpa, Assam —*Com.*

6. Is this *Maleyaka Candana* identical with the *Malayaja* ? The colour of the *Maleyaka* is mentioned as *pāṇḍurakta* (reddish white) while according to me *Malayaja*=*Śveta Candana* (white Sandal).

7. The Sanskrittext forthis passage reads as follows on p. 78 :—
"Candanam—

Sātanam raktam bhūmigandhi (1)

Kucandana is as *black* as *Agaru* (resin of the aloe) or *red* or *dark-red* and very rough ; *Kālaparvataka* is of pleasant appearance ; *Kośākārapar-vataka* (that which is the product of that mountain which is of the shape of a bud) is black or *variegated black* ; *Śītodakīya* is *black* and soft and smells like a lotus flower ; *Nāgaparvataka* (that which is the product of Nāga mountain) is rough and is possessed of the colour of Śaivala (Vallisneria) ; and Sākala is brown.[7]

Light, soft, moist, (*aśyāna,* not dry), as greasy as ghee, of pleasant smell, adhesive to the skin, of mild smell, retentive of colour and smell, tolerent of heat, absorptive of heat, and comfortable to the skin,—these are the characteristics of Sandal (*Candana*)."

We may here note that in the above elaborate and minute account of *candana* and its varieties given in the *Arthaśāstra* there is no reference to the *white sandal* (*śveta-candana*) which we get in some late works. The colours of *candana varieties* mentioned by *Kauṭilya* are *red, dark-red, black,* colour of the feathers of a parrot, colour of *śaivala,* and *reddish white,* but not pure white.

(4) We are familiar with the following verse[8] which associates *canadana* with the *Malaya* mountain :—

Gośīrṣakaṃ kālatāmram matsyagandhi (2)
Haricandanam śukapatravarṇamāmragandhi (3)
Tārṇasam ca (4)
Grāmerukaṃ raktam raktakālam vā bastamūtragandhi (5)
Daivasabheyaṃ raktam padmagandhi (6)
Jāpakaṃ ca (7)
Joṅgakaṃ raktam raktakālam vā snigdham (8)
Taurūpam ca (9)
Maleyakam pāṇḍuraktam (10)

Kucandanaṃ kālarūkṣamagurukālam raktam raktakālam vā (11) *Kālaparvataka*mana-vadyavarṇam vā (12) *Kośākāraparvataka* kālam kālacitram vā (13) *Śītodakīyam* padmābham kālasnigdham vā (15) *Nāgaparvatakaṃ* rūkṣamśaivalavarṇam vā (15) śākalamkapilamiti."

8. Vide p. 176 of *Subhāṣitaratnabhāṇḍāgara*. N. S. Press, Bombay, 1911—Some other verses which connect the *Canadan* plant with the *Malaya* mountain may be noted here :—

Page 312 — "*Malayaja*rasaviliptatanavaḥ ...... abhisārikāḥ ॥ 23 ॥"

Page 63 — "*Malaya*bhuvi virūḍhaścandanenābhivṛddho
Na bhajati kila veṇuḥ saurabham *candanasya* ।"

Page 90 — "*Malayācalagandhena* tvindhanam *candanāyate*."

Pages 248-9 — Verses 40-61 on *anyoktis* regarding *Canadana* — Some of these verses associate *Candana* with the *Malaya* mountain. A few verses refer to presence of *serpents* on the *Candana* trees.

"Atiparicayādavajñā saṁtatagamanādanādaro bhavati I
malaye bhillapurandhrī *candanataru*-kāṣṭhamindhanaṁ kurute II"

In connection with the above association of *candana* with the *Malaya* mountain I have to state that we have the following testimony for it from a Chinese source of the *7th century* A.D. :—

Shaman Hwui Li, the pupil of *Hiuen-Tsiang* (A D. 645) describes in his *Life of Hiuen-Tsiang* (Trūbner, 1911, p. 140) the *Sandal* and *Camphor*[9] trees in the country of *Malakūta* bordering on the sea-coast as follows :—

"To the South of this Kingdom bordering on the sea is *Malayagiri*, with its precipices and ravines, towering upwards and lying deep. Here is found the WHITE SANDAL-SCENTED tree, the *Chandaneva* tree. This tree is like the white poplar. Its substance being of a cold nature many kinds of SNAKES frequent the trees during summer but in the winter they conceal themselves in the ground. Thus this kind of sandal tree is distinguished.

If the above description of the *white candana* tree growing on the Malayagiri is true to facts we have in it reliable evidence of a foreign source regarding the production of *white candana* tree on Indian soil in the *7th century* A.D. The question now arises : Was the *white candana* known to Indians earlier than c. A.D. 500 ? If this white variety of *candana* had been known to Kauṭilya he would not have failed to refer to it in his elaborate account of the *candana* varieties, red, black, greenish, reddish white etc.

(5) C. V. Vaidya in his *Epic India* (Bombay, 1933, p. 139) records a description of Yudhiṣṭhira's daily life as given in Chap. 82 of the *Droṇa-parvan* of the *Mahābhārata*. This description contains a reference to *sandal-scented water* and *red sandal wood* as will be seen from the following extract :—

"Yudhiṣṭhira rose in the morning and having performed the necessary duties went to the bath-room. One hundred and eight bath servants

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9. Shaman Li describes the *Camphor* tree as follows : —"Again there is the *Karpūra* scented tree. It is like the pine in its trunk, but leaves different, as also its blossoms and fruit. When the tree is cut down and full of sap, it has no scent but when it has been cut down and dry, then dividing it through the middle there is found the scented portion, in appearance like mother of pearl and of the colour of congealed snow. This is what is called Dragon brain Scent (camphor)."

In the *Gandhayukti* Section of *Bṛhatsaṁhitā* of Varāhamihira (c. A. D. 500) mention is made of mṛgakarpūra, karpūra, candana etc., and tāmbūla, pūgaphala, kakkola, etc.

bathed him with *sandal-scented* water poured out of golden pots after having rubbed him with medicinal preparations. He then wound about his head a swan-white turban in order to drain off the wetness of his head. Besmeared[10] with *red sandal wood* and putting on newly washed clothes and a garland he sat for some time doing his *Japa* facing the east and with his hands clasped in adoration."

Reference is made in the above passage to the *red sandal wood* used for besmearing the body. I would like to know from scholars who have made an intensive study of the *Mahābhārata* if they have noticed in this Epic any references to the *white sandal* (*śveta candana*).

(6) In the *Kuṭṭanīmata* of Dāmodara Gupta of Kashmir (c. A.D. 756-786) edited by T. M. Tripathi, Bombay, 1924, we find the following references to *candana* :—

Verse 102 —*Candana*paṅkaḥ paṅkeruhanīrahāraghanasāram"
(*Ghanasāra*=camphor).

Verse 607 —"Ghanasāra-kuṅkuma—*candana*-dhūpādi"

It is not clear from the above references whether the *sandal* referred to as *candana* was *white* or red.

(7) The *Amarakośa* (Kāṇḍa II, Chap. 6—manuṣya-varga) mentions camphor or *karpūra* in the following line :—

"Atha karpūramastriyām |
ghanasāra candrasaṁjñaḥ sitābhro himavālukā || 130 ||"

and then mentions the synonyms of *candana* as also its varieties as follows :—

"Gandhasāro malayajo bhadraśrīcandano'striyām | " [11]

The *Amarakośa* further records the varieties of *candana* as follows :—

"*Tailaparṇika gośīrṣe haricandanama*striyam || 131 ||"

Bhānujī Dīkṣita explains :—

"Taileti | tilaparṇe vṛkṣabhede jātā | ......

"Tailaparṇī malayaje śrīvāse sihlake'pi ca" iti *Medinī* | goḥ

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10. On p. 156 of *Epic India* C. V. Vaidya observes :—"The people of the South such as Paṇdya, Kerala and other countries are described as decked with garlands, having red teeth, wearing clothes dyed in diverse colours, and having bodies besmeared with powder (gandhacūrṇāvacūrṇitāḥ"—*Karṇaparvan*, XII (17).

11. Bhānujī Dīkṣita (c. A.D. 1630) explains this line and quotes other lexicons *Viśva* and *Trikāṇḍśeṣa* in support of his explanation of the synonyms for *sandal* viz. gandhasāra, malayaja, bhadraśrī and candana, (Vide p. 383 of *Amarakośa*. N S. Press, Bombay. 1905).

śīrṣamiva I -tailaparṇagośirṣau ākarāvasya iti svāmī (=Kṣīrasvāmī c. A.D. 1050) I harerindrasya candanam I hari *kapilavarṇam* candanam I '*Haricandanam*astrī syāttridaśānām mahīruhe I napuṁsakam tu *gośīrṣe* jyotsnā kuṅkumayorapi' iti *Medinī* II 1 II candanaviśeṣāṇām pṛthak pṛthak II"

Among the four synonyms of sandal mentioned by Amara the synonym *malayaja* (product of the Malaya mountain) may indicate the *white sandal* in view of the testimony of Shaman Li about *white candana* trees growing on Malayagiri[12] recorded in the *Life of Hiuen-Tsiang* pointed by me already.

The *Amarakośa* also records 5 synonyms of *red sandal* :—

"Tılaparṇī tu pattrāṅgam rañjanam raktacandanam I kucandanam ca."

The only variety of *candana* which can be identified with *white sandal* appears to be the *malayaja* mentioned by the *Amarakośa*. We must, therefore, hunt up the antiquity[13] of this term or its synonyms in Sanskrit literature and allied sources prior to say A.D. 500.

(8) The medical glossary called the *Dhanvantari Nighaṇṭu* supposed to be earlier than the *Amarakośa* refers to white sandal (*śveta-candana*) in the following verse quoted by K. M. Vaidya in his *Aṣṭāṅgahṛdayakośa*, 1936, p. 214) :—

"Candanam gandhasāram ca mahārham *śvetacandanam* I
bhadraśrīstu *malayajam* gośīrṣam tilaparṇikam II"

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12. Cf. *Pañcatantra* 1. 41— "Vinā malayamanyatra candanam na prarohati"— In the *Aṣṭāṅgahṛdayakośa* by K. M. Vaidya, Trichur 1936, p. 429 we find the following remarks on Malaya —

"Malayaḥ, sūtrasthana 5 parvataviśeṣaḥ, one of the seven principal chains of mountains in India. It is most probably to be identified with the southern portion of the Ghats running from the South of Mysore and forming the eastern boundary of Travancore."

13. Kalidasa in his *Śakuntala* refers to the sandal tree and its natural home the Malaya mountain in Act IV as follows:—

"Kathamidānīm tātasyāṅkāt paribhraṣṭā *malaya*taṭonmūlitā candanalateva deśāntare jīvitam dhārayiṣyāmi I "—Monier Williams (p. 175 of his Oxford edition, 1876) translates this passage as follow:—"How now removed from my foster-father's side like a tendril of the Sandal tree uprooted from the slopes of Malaya, shall I support life in a strange place ?"...... Frequent allusion is made to this tree being infested by snakes (see *Raghuvaṁśa*, IV, 46, 48 and *Hitopadeśa* p. 1582 of Johnson's 1st Ed.)—Shaman Li's remarks support this allusion as we have seen above. Kalidasa himself refers to black serpent and *Candana* tree in Act VII, verse 182 of the *Śakuntala* :—

"Sattvasaṁśrayasukho'pidūṣyate I Kṛṣṇasarpa-śiśunevacandanam II 182 II "

Pliny in his *Natural History* [Book XII (XVIII)] describes trees of countries adjacent to India. In this description he observes:—"There was also a *plant with a very strong scent*, that was full of tiny *snakes* whose bite was instantly fatal." (Vide p. 25 of Trans. by H. Rackham, Vol.IV—Loeb Classical Library).

In this verse the several names (*namani*) of sandal are mentioned. While the term *malayaja* indicates the topography of the region where sandal was produced, the term *śvetacandana* indicates its colour. It is possible to identify *malayaja* with *śvetacandana* in view of Shaman Li's evidence.

(9) Aparārka (c. A.D. 1100) in his commentary on the *Yājñavalkya Smṛti* (ed. in Ānandāshram Sans. Series, Poona, 1903, Vol. I, p. 483), Chap. I—*Śrāddhaprakaraṇa*, quotes the following verse from *Brahmapurāṇa* which distinctly mentions *śvetacandana* (white sandal) :—

"*śvetacandana*karpūra-kuṁkumāni ca ।
vilepanārthaṁ dadyāttu yadvānyatpitṛvallabham ॥"

It would appear from this reference that the *white sandal* had become current in India long prior to A.D. *1100*.

(10) In the *Bhāvaprakāśa* of Bhāvamiśra (*c.* A.D. *1550*) *dhavalacandana* (white sandal) is referred to in the following line :—

"cūrṇalehāsavasnehāḥ sādhyā *dhavalacandanaiḥ*"
(See p. 214 of *Aṣṭāṅgahṛdayakośa* by K. M. Vaidya).

(11) In the *Rājanighaṇṭu* of Narahari (c. A.D. 1450) two varieties of *Śvetacandana* viz. *veṭṭa* and *sukvaḍi* are mentioned. We are further informed that the hills near the *Malaya* mountain produce *candana* called *Veṭṭa* :—

"Candanaṁ dvividham proktam veṭṭasukvaḍisaṁjñakam ।
veṭṭaṁ tu sārdravicchedam svayam śuṣkam tu sukvaḍi ॥
malayādrisamīpasthāḥ parvatāḥ veṭṭasaṁjñakāḥ ।
tajjātam candanam yattu *veṭṭa*vācyam kvacinmate ॥"
(see p. 214 of *A. Hṛ. Koṣa* by K. M. Vaidya).

(12) Vaṅgasena (*between* c. A D. 900 *and* 1100) is quoted by *Hemādri* (c. A.D. 1260) in his commentary on the *Aṣṭāṅgahṛdaya* (*Cikitsā Sthana*, Chap. 2-p. 582 of Paradkar Shastri edition, Bombay, 1939). In this long extract we find references to *candana*, *raktacandana* (red sandal) and *sitacandana* (white sandal) in the treatment of *raktapitta* (leprosy). Shri Bappalal G. Vaidya in his *Nighaṇṭu Ādarśa* (Part II, Broach, 1928, p. 346) quotes the following line from Vaṅgasena which refers to *śvetacandana* (white sandal) :—

"*śvetacanadan*kalkena hilamocābhavam rasam । pibanmasūrikārambhe ... ॥"

(13) Cakrapāṇidatta (*c.* A.D. 1060) mentions "*dhavalacandana*" in explaining the term *agryacandana* used by Caraka in the following line in *vimānasthāna*, ch. 6. (p. 256 of *Carakasaṁhitā*) N. S. Press, Bombay, 1941) :—

Caraka :— ... kṣaṇe kṣaṇe *agryacandana*priyaṅgu ... anugataiśca vāribhiḥ abhiprokṣaṇam ... ."

Cakrapāṇi :—agryacandanaṁ *dhavalacandanam*"

I cannot say how far Cakrapāṇidatta is correct historically in equating *agrya* (best) *candana* of *Caraka* with *dhavala candana* (*white sandal*) known to him.

(14) *Śāraṅgadhara Saṁhitā*, a medical work assigned to the *14th century* A.D. (between A D. 1300 and 1400) mentions "*tagaracandana*" in its recipe for *śatāvarītaila* in the following line :—

"śatāvarī devadāru māṁsī *tagaracandanam*."

[Verse 710 of *Khaṇḍa* II, Ch. 9 of the Edition (Poona, 1917) by P. L. Vaidya and Y. G. Dikshit.]

The term "*tagaracandana*" is translated in Marathi as "*pāṇḍhrā candana*" (*White Sandal*).

(15) Mammaṭa (c. A.D. *1100*) in his *Kāvyaprakāśa*, Ullāsa X (p. 789 of the Edition of 1917 with Jhalkikar's commentary) quotes the following stanza[14] as an example of *sāmānya alaṁkāra* :—

"*Malayaja*rasaviliptatanavo navahāralatāvibhūṣitāḥ
sitataradantapattrakṛtavaktraruco rucirāmalāṁśukāḥ ।
śaśabhṛti vitatadhāmni *dhavalayati* dharāmavibhāvytām gatāḥ
priyavasatim prayānti sukhameva nirastabhiyo' bhisārikāḥ ॥ 557 ॥"

In this verse women proceeding to meet their lovers on a moon-lit night are described. Being clad in white from top to toe they are fearless of being detected owing to their whiteness being completely merged in the moon-light. Their garments and ear-ornament and bodies besmeared with the pastes of *sandal* (*malayaja*) are all white. Hence there is no contrast of colours which can mark them out on a moon-lit landscape.

It is clear from the above verse that the colour of *sandal paste* used by these women was quite *white*, consequently the term *malayaja* (sandal from the Malaya mountain) used in the above verse definitely means *white sandal* or *śvetacandana* or *dhavalacandana*. Pandit Jhalkikar in his commentary points out that the above verse "*malayaja* etc." has been quoted by Vāmana (*c.* A.D. *800*) in his *Kāvyālaṁkārasūtravṛtti* (Chap. 3 of *Adhikaraṇa* IV). In view of this evidence we are warranted in concluding that the *sandal* known as *malayaja* about A. D. *800* was definitely of white colour and that it came from the Malaya mountain. This evidence confirms the statement of Shaman Li that the sandal tree

14. I am thankful to my friend Dr. K. N. Watave of the S. P. College, Poona, for directing my attention to this stanza.

growing on the Malayagiri was white sandal. Shaman Li's evidence is about 150 years earlier than Vāmana's as *Hiuen-Tsiang* returned to China from India in 645 A D. *Shaman Li* wrote his *Life of Hiuen-Tsiang* as a supplement to his guru's *Record.*

(16) Hemacandra (A D. 1088-1172) in his lexicon *Abhidhānacintāmaṇi* (III—*Martyakāṇḍa*, verse 302) describes a cosmetic called *yakṣakardama* prepared by mixing up *karpūra*, *aguru*, *kakkola*, *kastūrī* and *candana*. In his commentary he quotes *Dhanvantari* in support of this recipe as follows ;—

"*Dhanvantaristu* —
"Kuṅkumāgurukastūrī karpūram *candanam* tathā I
mahāsugandhimityuktam nāmato yaksakardamaḥ II"

He then gives the varieties of *candana* and explains them as follows :

(1) Śrīkhaṇḍam—śriyā khaṇḍayati.
(2) Rohaṇadruma- rohaṇācalasya drumaḥ.
(3) *Malayaja*—malayādrerjātaḥ.
(4) Candana—candyate hlādyate anena.
(5) Bhadraśrī.
(6) Phalakī
(7) Haricandana—hareḥ indrasya candanam or harikapilam vā tacca ati śītam pītam ca āhuḥ.
(8) Tailaparṇika—tailaparṇo giriḥ ākaraḥ asya.
(9) Gośīrṣa giribhavatvāt gośīrṣaḥ.

He mentions the *red sandal* and its names :—

(1) Patrāṅga, (2) raktacandana, (3) kucandana, (4) tāmrasāra, (5) rañjana, (6) tilaparṇikā.

Many of the names in the above list are found in the *Amarakośa* (between A.D. 500 and 800) including the *malayaja*, which I presume is *white sandal* (*santalum album* L) in view of the evidence of *Shaman Li* (c. 650) and *Vāmana* (c. A.D. 800) already recorded by me.

(17) The *Kāraṇḍavyūha*, an early Sanskrit Buddhist-text (Calcutta Edition) contains the following references to sandal (*candana*) :—

Page 56 —"Vividhāni *candana*-karpūra-kastūrikādīni dhārayati I"
Page 60 —"Divyāḥ ca *aguru*-drumavṛkṣāḥ *sugandhaḥ* candanavṛkṣāḥ"

(18) The *Bhela Saṁhitā*, one of the earliest medical texts like *Carakasaṁhitā*, contains many references to candana. I note some of them from the Calcutta Edition, 1921 (ed. by Asutosh Mookerjee) :—

Page 2—"*candanasya* ca yat sāraṁ badarāt khadirasya ca."
Page 7—Syāmakāguru*candanam*."
Page 114 —"yaś*candana*mivābhāti."

Page 123 —Mahāpadmataila (Recipe).

—"darbhavetasamūlāni *candanam* madhukam..bala."

Page 174 —"*Candanam* nīlamutpalam."

Page 205 —Mūlakataila (Recipe).

—"vacā cāgurucandanam."

Page 206 —Rāsnātaila (Recipe).

—"*Candanam* paripelavam.

Page 214 —Udumbarādilepa (Recipe).

—"madhukam *candanam* tilāḥ"

Page 217 —"*Raktacandanadigdhāṅgāḥ* (kāntāḥ).

Page 251 —"*Candanaiśca* sapadmakaiḥ"

Page 264 —"*Candanam* padmakam caiva."

Page 267 —Drākṣā madhuka*candanaiḥ*."

The above references clearly show how *candana* had become a recognised item of the *materia medica* of the time of the *Bhela Saṁhitā*. It was freely used in the preparation of some medical oils like *rāsnātaila, mahāpadmataila, mūlakataila etc.* These references, however, do not give us any idea about the species of *candana* used for these preparations.

(19) Another early medical compendium viz. the *Kāśyapasaṁhitā* (ed. by Rajaguru Hemaraja of Nepal, N. S. Press, Bombay, 1938) contains numerous references to *candana* as will be seen from the extracts noted below :—

Page 73 —(*Bālagrahacikitsita*)

—"tālīsapatram naladam tathā *candanasāriva*

....

etaistailam samam siddhametc."

Page 133 —(Chapter on *dhūpakalpa*)[15] —Recipe for *vāruṇa dhūpa*.

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15. This chapter is important as it gives recipes for the following *dhūpas* which were current about 2000 years ago :—Kaumāradhūpa, māheśvaradhūpa, āgneyadūpa, bhadraṁkaradhūpa, rakṣaghnadhūpa, uttamadhūpa daśāṅgadhūpa, mohadhūpa, vāruṇadhūpa caturaṅgikadhūpa, nandakadhūpa, kaṇadhūpa, śrīdhūpa, grahaghnadhūpa, puṇyadhūpa, śiśukadhūpa, brāhmadhūpa, pratidhūpa, siddhārthakadhūpa, ariṣṭadhūpa, gaṇadhūpa, svastikadhūpa, gṛhadhūpa, etc. The text refers to forty kinds of *dhūpas* (p. 135) :—

"Siddhārthārthāśceti dhūpāste*catvāriṁśa*dudāhṛtāḥ |
bhiṣagsiddhikarā nṛṇām putradā roganāśanāḥ ||

These *dhūpas* or different kinds of incense were used not only for medical purposes but also for scaring away ghosts etc. who were supposed to cause ill health. They had also some value as perfumes as some of the ingredients used in them were aromatic. The chapter on *dhūpakalpa* is concluded with the story about the origin of the *dhūpas* :—The Ṛṣis were disturbed in their penance by *rākṣasas*. They approached *Vanhi* (Fire) for help. *Vanhi* gave them these *dhūpas* as a means to scare away these *rākṣasas*—This is a mythical story about the origin of *dhūpas* with a religious back-ground. Then follows a dhūpa-japa :— "Agnistvā dhūpayatu, brahmā tvā dhūpayatu......namodevebhya itijapet."

—"Smṛtaṁ śrīveṣṭakā......ra lākṣāpadmaka-*candanam* ||
sadevadāru surasaṁ śālajaṁ ceti yojayet |
dhūpo'yaṁ vāruṇo nāma grīṣmakāle praśasyate."

Page 280 — (Sūtikopakramaṇīya—adhyāya).
—"sārivā *candanośīra*drākṣāpadmakasādhitām |"
—"*candanasya* ca *kalkena* siddhaṁ sarpirjvarāpaham || 124 ||
Candanādyena siddhaṁ paṭolādyena vā ghṛtam | pāyayet..."

Page 283 — "kalkena sārivā śuṇṭhī lodhradāḍima-*candanaiḥ*."

Page 290 — (kukkuṇacikitsita)
—"Sarpimaṇḍaṁ surāgram ca aindrīṁ *candana*meva ca"

Page 297 — (Visarpacikitsā)
—"Guḍūcīṁ madhukaṁ caiva *candanaṁ* ceti tat pibet"
—"Uśīraṁ *candanaṁ* caiva śādvalaṁ śaṅkhamutpalam"
—"Hrīberaṁ *candanośīraṁ* etc."
—"Vidārīṁ *candanośīraṁ* tathā *candanasārivāṁ*"
—"Paṭolanimbamustānāṁ *candanośīrayorapi*"

Page 298 — "Tālīśaṁ..... *candanadvayam*."
—"Mūlāni *candanośīram*......"
"Kalkaiḥ...*candanānāṁ* vipācitam."

Page 304 —(Pittacarmadala cikitsita)—*carmadala* is a kind of leprosy or cutaneous disease.
—"śuklā *candanara*sāñjana...."
—"yaṣṭīmadhuka-*candana*kalko vā."
"*candana*-bhadramustā...".
—"*candanośīra*kalko vā."
—"*candanakṣīra* kākolī..."

Page 313 — (Śothacikitsita).
—"abhayā...madhu*candanaiḥ*."

Page 316 — "ubhe haridre...yaṣṭīmadhūka*candanaih*."

Page 317 — "Śūlacikitsā).
—"...śayyāṁ...*candanā*mbuprasiktāṁ."

Page 324 — "(Aṣṭajvaracikitsā).
—"*candanā*gurubālhīka...".
—"sa*candana*yavośīra...".

Page 60 — "raktapuṣpāmbaradharā *raktacandana*rūṣitā."

Pags 105 — (Dhātrīcikitsita).
—"tvakpatraṁ *candanośīraṁ*."

The extracts show how *candana* was prescribed against several diseases in ancient India but unfortunately they do not reveal what particular species or variety is meant by the term *candana* used in them. The *rakta-candana* is of course different from *candana*. On *page 298* the expression

"*candanadvayam*" is used but it is difficult to say whether it means (1) *candana* and (2) *raktacandana* or two varieties of candana itself.

(20) Principal Bappalal G. Vaidya in his *Nighaṇṭu Ādarśa* (Broach, 1928, Part II, p. 345) records the following references to *candana* from the *Caraka-Saṁhitā* :—

(i) Raktapitte — "*candanatulyabhāgikāḥ*" (Ciki. ch. 4).

(ii) Raktārśasām snigdharaktasaṁgrahaṇe —

— "*sanāgaraśacandanarasaśca* ॥" (Ciki. ch. 9).

(iii) Hikkāyāṁ — "*nāvayeccandanaṁ vāpi*" (Ciki. ch. 21).

(iv) Vamane — "Dhātrīrasenot*tamacandanaṁ* vā" (Ciki. ch. 23).

(v) Raktātisāre — "*candanaṁtaṇḍulāmbhasā*" (Ciki. ch. 10)

References from the *Suśruta Saṁhitā* recorded by Vaidya are :—

(i) Pradare — "*candanakvāthameva* vā (Śārīra ch. 2).

(ii) Śukramehe — "kakubha*candanakaṣāyaṁ* vā (Ciki. ch. 11)

(iii) Mañjiṣṭhāmehe — "mañjiṣṭbā*candanakaṣāyam*" (Ciki. ch. 11).

These references to *candana* do not give us any particulars about the exact variety of *candana* which was used in medical practice 2000 years ago. The terms "*uttamacandana*" used by Caraka in *Chikitsā*, Chap. 23 corresponds to the term "*agracandana*" used by Caraka in *Vimāna*° Chap. 6. Dallaṇa explains this term as "*dhavalacandna*" or white sandal.

(21) Patañjali (c. *150* B.C.) in his *Vyākaraṇa Mahābhāṣya* comments on the sūtra of Pāṇini (2.2.8) — "Tatsthaiśca guṇaiḥ ॥ 2 ॥" as follows :—

" Ṣaṣṭhīguṇaiḥ ṣaṣṭhī samasyate iti vaktavyaṁ। brāhmaṇavarṇaḥ *candanagandhaḥ* paṭahaśabdaḥ nadīghoṣaḥ" (see page 413 of Kielhorn's Edition, Vol. I. Bombay, 1892). It is clear from this reference that a *scented* variety of *candana* was current in India about *150* B.C. as the term "*candanagandha*" (odour of sandal) indicates. This reference is in harmony with the references to *candana* in the early medical saṁhitās of *Caraka*, *Suśruta*, *Bhela* and *Kāśyapa* recorded by me already.

(22) In the *Word-Index to Pāṇini-Sūtra Pāṭha and Pariśiṣṭas* (B.O.R. Institute, Poona, 1935) the following references to *candana* are noted from *liṅgānuśāsana* and *gaṇapāṭha* only :—

(i) *gaṇapāṭha* (pp. 384 and 703) — "*candana* 217, 5."

(ii) *liṅgānuśāsana* — "*candana* 76".

The Index does not record any references to *candana* in the *Kātyāyanavārtika*, *Aṣṭādhyāyī*, *Dhātupāṭha*, *Śākaṭāyanasādhitaśabdāḥ* and *Phiṭsūtra*.

(23) No references to *candana* are found in the *Ṛgveda, Atharvaveda, Yajurveda* and *Sāmaveda.* I have consulted the Indices to these texts but failed to find any references to *candana* in them.

(24) I have already pointed out some references to *candana* in the *Mahābhārata.* I note below a few references to *candana* from the *Rāmāyaṇa* (ed. with Marathi Trans. by S. D. Satavalekar, Aundh) Ayodhyākāṇḍa (1942) :—

Page 21 — "Antaḥpurasya dvārāṇi sarvasya nagarasya ca ॥ 13 ॥
*Candana*sragbhirarcyantāṁ dhūpaiśca ghrāṇahāribhiḥ"
(Ayo. 3·13).

Page 120 — "Varāharudhirābheṇa śucinā ca sugandhinā ।
Anuliptaṁ parārdhyena *candanena* paraṁtapam ॥"
(A. Sa. 16·9).

Here the *candana* paste used for besmearing the body is stated to be of the colour of the blood of a boar and highly scented.

Page 105 — "*Candanā*gurudhūpaiśca sarvataḥ paridhūpitām ॥ 28 ॥
tāṁ purīṁ samatikramya ... " (A. Sa. 14·28).

Page 127 — "Rājamārgaṁ yayau Rāmo madhyenāguru-dhūpitam ॥ 3 ॥
Candanānāṁ ca mukhyānāmagurūṇām ca saṁcayaiḥ"
(A. Sa. 17·3-4).

Page 128 — "Dadarśa taṁ rājapathaṁ divi devapatiryathā ॥ 6 ॥
dadhykṣata-havirlājaidhūpairagurucandanaiḥ"
(A. Sa. 171·6-7).

Ayodhyākāṇḍa (uttarārdha) 1942 —

Page 57 — "*Haricandana*[16]saṁpṛktamudakaṁ" (A. Sa. 65·8).

88... "*Candanā*gurusaṁpṛktadhūpasaṁmūrchito' malaḥ ।
pravāti pavanaḥ ... ॥ 29 ॥" (A. Sa. 71·29).

Page 231 — "*Candanena* mahārheṇa yasyāṅgamupasevitaṁ"
(A. Sa. 100·35).

Page 311 — "*Candanā*gurugandhaśca na pravāti samantataḥ ॥ 20 ॥"
(A. Sa. 115·20).

— "*Candanā*gurugandhāṁśca mahārhāṁśca vanasrajaḥ ॥ 22 ॥"
(A. Sa. 115·22).

The few references to *candana* in the *Rāmāyaṇa* collected above show

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16. The *Śāśvata Kośa* (ed. K. G. Oka, Poona, 1918) of *about* A.D. 600 refers to *haricandana* as follows :—

"kuṅkumedevavṛkṣe ca *Haricandanamiṣyate*" (p. 39).

kuṅkuma = saffron ; *devavṛkṣa* = *mandāra* tree (Apte's Dictionary).

how it was used as a perfume in social and domestic life of people living in the city as also at the royal court. These references also are not very helpful in our inquiry about the species of *candana* used for several purposes such as perfuming water, burning as incense, perparing paste for besmearing the body etc.

(25) In the *Mānasollāsa* (c. A.D. 1130) of the Cālukya King Someśvara (G. O. Series, Baroda, Vol. II, 1939. pp 85–87) there is a section called the *vilepanabhoga* on the King's use of cosmetics and unguents etc. such as (1) *yakṣakardama*, *sāndhyalepa*, *puṁlliṅgagandha*, etc. The *sāndhyalepa* is meant for the removal of the odours of body sweat. The root of the *candana* tree to be used for this paste is described in detail as follows:—

> "*Candanasya* tarormūlaṁ granthikoṭaka (ra) karparam ॥ 984 ॥
> gandhotkaṭaṁ himasparśaṁ variṣṭhaṁ tannirūpitam ।
> yacchedādraktatāṁ dhatte gharṣe pītatvameva ca ॥ 985 ॥
> śoṣe śubhratvamāyāti svāde tiktarasaṁ bhavet ।"

The sandal root described above is extremely scented and cool to the touch as ice; when cut it appears *red*, when it is rubbed (on a stone) it assumes *yellow* colour, but when it is dried up it becomes *white*. — Is this a description of the root of the *white sandal* (*santalum album*) ?

(26) The poet Bāṇa (c. A.D. 630) refers to *malayaja* in his *Kādambarī* (page 316 of *uttarabhāga* — B. S. Series) in the following line :—

> "Malayajajalārdrapadminīpattrāstaraṇena."

This line mentions "a bed of lotus leaves wet with sandal (*malayaja*)-water". Possibly *malayaja* means here the *white sandal*. I may note here some more references to *candana* from the *Uttarabhāga* of *Kādambarī* :—

Page 241 — "Karpūrakṣodamiśra*candana*paṅkapiṇḍa."
Page 248 — "*Haricandana*rasacarcām."
Page 251 — "Sarasaharicandanapaṅkacchaṭāchūraṇena'"
Page 253 — "Lalāṭaphalakena *candana*lekhikām."
Page 255 — "*Candana*parimala iva" ; "sarasaharicandana."
Page 256 — "*Bhujaṅgīva* asahyasaṁtāpāliṅgita*candanā*."
Page 269 — "Pūrvadigvadhūvadana*candana*tilake."
Page 269 — "Limpadbhiriva sāndracandanadraveṇa *yāminīm*" (candrapādaiḥ).
Page 281 — "Toraṇābaddha*candana*mālam "
Page 283— (Description of *jalamaṇḍapa*).
— "Karpūrapaṭavāsaharicandana" ; "candanāṅgarāgam."

Page 299 — *Haricandanacarcā.*"

These and other references to *candana* in Bāṇa's works fully illustrate the varied use of *candana* in the 7th century A.D.

(27) Dhanapāla in his lexicon *Pāialacchināmamālā* (A.D. 973) mentions "*Malayaruhaṁ candanaṁ*" (vide folio 4. *MS No.* 185 of 1872-73). The term "*Malayaruha*" is identical with "*malayaja,*" which according to my view is *white sandal* growing on the *Malaya*[17] mountain.

(28) The (*Prākrit Dictionary*) *Pāiasaddamahaṇṇava* (by Har Govind Das) records the following usages of *candana.*

Malaya = śrīkhaṇḍa (— Jīvājīvābhigamasūtra. 3) = candana.
Malaya bhava = Candana (*Gauḍavaho* — Between A.D. 729 and 753).
Malayaruha = Candana (*Surasundarīcaria*, 1, 28 — C. A.D. 1090.
Candanakāṣṭha (*Pāialacchīnāmamālā* — (A.D. 973).

(29) *Varāhamihira* (c. A.D. 500) in his *Bṛhatsaṁhitā* refers to *candana* and *Malaya* (*Malayaja*) in the following extracts from J. H. Athalye's edition of *Bṛhatsaṁhitā* with Marathi Translation (Ratnagiri, Jaganmitra Press, 1873) :

chapter on cosmetics (No. 78 — gandhayukti)
verse 7 — "Kuṣṭhenotpalabandhikaḥ *samalayaḥ* Pūrvobhaveccampako"
verse 8 — "*Malaya*priyaṅgubhāgau gandho dhūpyo guḍanakhena"
verse 9 — "......Turuṣkanakha*candanaiḥ* piṇḍaḥ"
verse 14 — "Karpūracoramalayaiḥ"
verse 24 — "......*malaya*nakhaśrīkakudurukāḥ"
verse 30 — "*candana*turuṣkabhāgau......"

It is clear from these references that *candana* and *Malaya* i.e. the *sandal* growing on the *Malaya*[18] mountain were used in Indian cosmetics in Varāhamihira's time. Possibly Varāhamihira distinguishes *malaya* (= white sandal) from *candana* in general.

Candana was also used for making furniture. In *Chap.* 79 (Śayyāsanalakṣaṇa) of the *Bṛhatsaṁhitā* the use of *candana* as timber is prescribed

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17. The *Mahābhārata Āraṇyaka Parva.* — B. O. R. Institute Critical Edition. 3 297, 14 (Page 1027) refers to the *malaya* mountain in the following verse :—
"*Himavān pāriyātraśca vindhyo malaya* eva ca |
catvāraḥ parvatāḥ kena pātitā bhuvi tejasā ‖ 14 ‖"

18. Varāhamihira refers to *Malaya* mountain in Chapter 14, verse 11 as follows :—
"Atha dakṣiṇena laṅkājina-Saurikīrṇa-tālikaṭāḥ |
Girinagara-malaya-dardura-mahendra-mālindya-bharukacchāḥ ‖ 11 ‖"

in the following extracts for preparing beds and seats (Śayana and *Āsana*) :-

verse 2 — "Asana-syandana-*candana* ....."
verse 12 — "*Candanamayo ripughno*......"
verse 18 — "Amba-syandana-*candanavṛkṣaṇāṁ*"

In *Chap.* 16 (Candana) we are told that the planet Bhṛgu or Śukra (Venus) governs materials like grahabhaktayaḥ etc. (*verse* 80 —"Jāti-phalāgaruvacāpippalyaś*candanaṁ* ca bhṛgoḥ").

(30) In the Sanskrit Buddhist text *Āryamañjuśrīmūlakalpa*, Trivandrum Sans. Series, 1920) there are many references to *candana*. According to Winternitz this work was translated into Chinese between A.D. 980 and 1000 and into Tibetan in the 11th century (p. 397 of Vol. II of *History of Indian Literature*, Calcutta). According to Marcelle (ibid p. 635) this work belongs to the *2nd century* A. D. Whatever be the exact date of the work we must take it to be prior to c. A.D. 900 in view of its Chinese translation between A.D. 980 and 1000 referred to by Winternitz. The Trivandrum edtion of this text contains the following references to *candana* and *Śveta-Candana* (*white sandal*) :—

Page 13 — "Gandhamādanaḥ simantāyatana-samantaprabha-*candana* etc." (Here "*candana* is the name of *Pratyekabuddha* in the *mahāparṣanmaṇḍala*)

Page 27 — "Saptābhimantritaṁ *candanodakaṁ*" (Sandal-water)
— "dhūpamantraḥ 13 *candanaṁ karpūraṁ* kuṅkumaṁ caikīkṛtya *dhūpaṁ* dāpayet"
— "karpūra *candanakuṅkumaiḥ*"("*gandhamantraḥ* cātra bhavati namaḥ sarvabuddhānāṁ' etc.)

Page 37 — "Pañcagavyasammiśritena *candanakarpūrakuṅkumo*dakena" etc.

Page 38 — "*candana*-karpūra-kuṅkumavyāmiśrakeṇa śvetasugandha-puṣpaiḥ" etc.

Page 47 — Āhutīnāṁ karpūra-kuṅkuma *candanamiśrāṇāmaṣṭasahasraṁ* juhuyāt"

Page 48 — "Tathāgatakule *candanaṁ*......śasyate"

Page 49 — ' Sugandha*candana*-kuṅkumābhyaktena *paṭena* maṇḍalaṁ praveśṭukānāṁ mukhaṁ veṣṭayitvā" etc.

Page 50 — "*Candana*kuṅkumābhyāṁ hastau mrakṣayitvā"

Page 52 — "*Candana*-kuṅkumodakena abhyaṣiñcet"

Page 56 — "*śvetacandanaṁ* kuṅkumodakaṁ......*śvetacandanakuṅkumakarpūraṁ* ca ekīkṛtya......"

Page 57 — "spraṇyāṅgasamutthaṁ vā kuṅkuma*candana*dibhiḥ I"

Page 58 — "*Śvetacandana*kuṅkumābhyāmanyatareṇa anulopāṅgāṁ *karpūravā*sitavadanaṁ"

Page 60 — "*Śvetacandana*liptāṅgaḥ hastau uddhṛtya śilpinaḥ ।"

Page 61 — "*Tatpaṭaṁ* .... karpūrakuṅkuma*candana*dibhiraṅgaṁ vāsayitavyaṁ"

Page 74 — "*Candanakuṅkuma*karpūraṁ ca ekīkṛtya"

Page 84 — "*Śvetacandana*kuṅkumābhyaktānāṁkhadirakāṣṭhaiḥagniṁ prajvālya"

Page 86 — "Nāgakesarakiñjalkābutīnāṁ *śvetacandana*-karpūravyāmiśrāṇāṁ"

Page 87 — "Nāgake*saracūrṇanāṁ* *śvetacandana*karpūravyāmiśrāṇāṁ"

— The sādhaka is to perform the homa at different places among which we find the *Malaya* mountain :—

"*Sahye Malaye* caiva arbude gandhamādane | tṛkūṭe parvatarāje. smiṅ sādhayet karmamuttamam ।"

Page 90 — "*Uśīraśvetcandana*kuṅkumaṁ vā karpūrādibhivyatimiśrayitvā"

Page 107 — "Karṇikārapuṣpāṇāṃ *śuklacandana*miśrāṇāṁ.. ...śatasahsrāṇi *juhuyāt*"

Page 111 — *Candanaḥ*, gandhamādanaḥ, ketuḥ, suketuḥ, sitaketurṣṭopārinemiśca" (*8 pratyekabuddhas*)

Page 121 — "Praśastairvamakaiścāpi śvetacandanakuṅkumaiḥ | prakṣālya yatnato tasmāt......"

Page *137* — "*Śvetacandanakarpūraṁ* kuṅkumaṁ miśrapūjitaḥ | "

Page 138 — "......juhuyātkuṅkuma*candanam*"

— "śvetapadmāṁ samābhṛtya *śvetacandana*saṃyutām"

Page 139 — "Nāgakesarakarpūraṁ *candanaṁ*kuṅkumaṁ samam | "

Page 144 — "*Śvetacandana*karpūrakuṅkumācca vidhīyate"

Page 145 — "*Śvetacandana*karpūrakuṅkumaṁ ca ekīkṛtya"

The wealth of references to the *Śveta candana* or *Śukla candana* (white sandal) in the *Āryamañjuśrī-mūlakalpa* pointed out in the above extracts clearly proves that this *white* variety of *sandal* had an honoured place, along with *karpūra*[19] and *Kuṅkuma* (camphor and saffron), in Buddhist

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19. Pandit G. S. Sadhle in his *Upaniṣadvākyamahakosa* (pūrvārdha), Bombay, 1940 on p. 141, records the following quotations from the *Śāṇḍilyopaniṣad* and *Yogaśikhopaniṣad* which mention *Camphor* (Karpūra) :—

— "Karpūramanale yadvat" (Śāṇḍi. 1-7-21)

— "Karpūre līyamāne Kiṁ kāṭhinyaṁ tatra vidyate (Yo. Śi. 1-1-49). Jacob's *Concordance* to *Upaniṣads* records no reference to *Karpūra*.

ritual and worship long prior to A.D. 900. The *Karaṇḍavyūha*, as already pointed out by me refers to *candana* only but does not mention the *Śveta-candana*. In my cursory perusal of the *Āryamañjuśrīmūlakalpa* I could not trace any reference to the *malayaja* sandal though this text refers to the *Malaya* mountain along with *Sahya* and other mountains.

(31) In the *Saundarananda of Aśvaghoṣa (2nd century* A.D.) edited by E. H. Johnston, Lahore, 1948, I find the following references to *canadana* and *Lohitacandana* :—

Page 19 — "Niścitamatirasi *candana*yoma jagāma duḥkhasukhayośca vikriyām"

Page 27 — "Tatstanodvartita*candanābhyā*mukto bhujābhyāṁ na tu mānascna"

Page 136 — "Praverito *lohitacandan*ākto haimo mahāstambha ivāvabhāse"

(32) Vātsyāyana in his *Kāmasūtra* (ed. by Kedarnath, N. S. Press, Bombay, 1900) refersto candana in the following extract :—

—"Tathā *canda*na-Kuṅkumayoḥ pūgaphalānāṁ patrāṇām kālayuktānāṁ......dānaṁ......"

(33) We have already referred to Kālidāsa's reference to *candana* plant on the *Malaya* mountain in his *Śakuntala* (Act IV). In his *Vikramorvaśīya* (N. S. Press. 1914 p. 60) Act III, verse 10, he refers to the *Malayaja* sandal used for smearing the body as follows :—

— "Kusumaśayanaṁ na pratyagraṁ na candramarīcayo, na ca *malayaja*ṁ sarvāṅgīṇāṁ na vā maṇiyaṣṭayaḥ"

(The commentator Raṅganātha observes :—

"Sarvāṅgīṇāṁ sarvāṅgavyāpi malayajaṁ candanaṁ."

In the *Ṛtusaṁhāra* of Kālidāsa (ed. by S. R. Sehgal, Lahore, 1944) we get the following references to *Candana* :—

1·2 — "Sarasaṁ ca *candanaṁ*", 1·4 — "stanaiḥ ...... sa*candanaiḥ*"
1·6 — "Payodharāś*candana*paṅkacarcitāḥ"
1·8 — "Sa*candanā*mbuvyajanodbhavānilaiḥ" "*breezes* produced by fans wet with sandal water"
2·21 — "Kālāgurupracura*candana*carcitāṅgayaḥ (nāryaḥ)"
3·20 — "Hāraiḥ sa*candanarasaiḥ*.........vibhūṣayanti"
5·3 — "Na *candanaṁ* candramarīciśītalaṁ"
6·12 — "Ālipyate *candana*maṅganābhiḥ"
6·6 — "Staneṣu hārāḥ *sitacandanārdrāḥ*" — This reference to *sitacandana or white sandal* is important for my suggestion that *malayaja* sandal is identical with white sandal. Kālidāsa uses the terms *malayaja, sitacandana* and refers to the association of the *malaya* mountain with *candana* and the serpents, who live in the vicinity of the *candana plant*.

VI, 28 — malayānila (breeze from the *Malaya* mountain).

(34) In the *Travels of Fa-hsien* (*399—414* A.D.) translated by H.A. Giles (Cambridge, 1923) we find the following references to *sandal* :—

Pages 30-31 — "when Buddha went up to heaven for ninety days to preach the faith to his mother, king Prasenajit, longing to see him, caused to be carved[20] in *sandal-wood from the Bull's head mountain* an image of Buddha and placed it where Buddha usually sat."

(Perhaps the sandal-wood from the Bull's-head mountain is the *go-śirṣa* sandal).

Page 72 — (Description of Ceylon)— '*Sandal-wood*, garoo-wood (lign-aloes), and all kinds of scented woods were placed at the top" (of the funeral pile of wood).

(35) In I-tsing's *Record* (A.D. *671-675*) translated by J. Takakusu, Oxford, 1896, *sandal-wood* is referred to in the following extract :—

Page 149 —"The scent is prepared as follows : take any perfume tree, such as *sandal-wood* or aloes-wood, and grind it with water on a flat stone until it becomes muddy, then annoint the image with it and next wash it with water."

(36) Reference to *sandal-wood* and its perfumes as mentioned in the Buddhist Jātakas (between B.C. *300* and A.D. *400*) have been recorded by R.N. Mehta in his *Pre-Buddhist India*, Bombay, 1939, as follows :—

Pages 202-203 — "*Sandal-wood*,especially *Kāsika-candana*, was the chief raw material and also a finished product in itself. (*Jātaka* V, p. 302. G 40; I, p. 331). *Sandal-wood-powder* and oil were manufactured (*Jātaka* I, pp. 129, 238, II, p. 273; IV, p. 82; VI. 336*)*."

(37) In the *Guhyasamājatantra* (G. O. Series, Baroda, 1931) which its editor assigns to about *3rd century* A.D. we get references to *candana* (sandal) and *karpūra* (camphor) and *kuṅkuma* (saffron) as follows :—

Page 8 —"Karpūra*candanairyuktāṁ* gulikām trilohaveṣṭitāṁ."

Page 99 —"*Karpūra*kuṅkumairyuktāṁ gulikām" etc.

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20. Sbaman Li (c.A.D. 650) in his *Life of Hiuen-Tsiang* also refers to carved figures of *Sandal wood* as follows :—

Page 91—"......carve from *sandal-wood* a true likeness of his (Buddha's) appearance."

Page 93—"King Udayana had caused a *sandal-wood* figure to be made......"

Page 213—'(Treasures from India taken by Hiuen-Tsiang in A.D. 645)' *Sandal-wood* figure of Buddha" (with pedestal 3 ft. 5 inches high).

Page 214—"*Sandal-wood* figure of Buddha" (with a pedestal 1 ft.—3 inches high). It is clear from the evidence of *Fa-hsien* and others that the *art of carving images* etc. from *Sandal-wood* now current in Mysore etc. has a clear antiquity of more than 1500 years.

(38) The *Lalitavistara* (ed. by Rajendralal Mitra, Bib, Indica, Calcutta, 1877) contains the following references to the *candana*[21] :—

Page 19 — "Tasyāḥ sarvaromakūpebhyaḥ *candanagandhaḥ* pravāti"

Page 513 — "Divyaiḥ *candanacūrṇaiḥ*"

Page 501 — "Yā ratnapātrī abhūta *candanamiśriṇikāṁ*"

(39) Mr. Tapo Nath Chakrabarty in his article on "Women in the Early Inscriptions of Bengal" (*B.C. Law Volume* II, 1946, pp. 242-260) records valuable information about women in Bengal during a period of more than 750 years (A.D. 432-1200). In this information he refers to the use of aromatic ingredients as follows :—

Page 257—"Fashionable ladies were thus in the habit of using *musk* and other aromatics like *camphor*, SANDAL etc. for their decoration.

Cf. ("Karpūrairiva pūritaṁ) *malayaja*kṣodairivālepitam"

— [v. 8 of *Kṛṣṇadvārikā* Temple Inscription]......we have reference in the Deopārā Inscription (verse 31) to the use of *sandal powder*."

The reference to Malayaja (*white sandal*) used by the women of Bengal as found in an inscription is noteworthy for the history of *śveta candana* (*white sandal*) in India.

(40) The *Ahirbudhnya Saṁhitā* (ed. M. D. Rāmānujācārya, Adyar, 1916) refers to *candana* and *raktacandana* as follows :—

Page 344 — "Bhūrjapatre likhetvaitatkuṅkumaiś*candanena* tu"

Page 279 — "*raktacandana*naliptāṅgaṁ devaṁ padmaiḥ samarcayet"

Page 387 — "*candanā*gurukarpūrakāśmīraksodamaṇḍitam"

(41) *Marco Polo* in his *Travels* (ed. by Thomas Wright, London: 1901) A.D. 1298 describes the island of *Nocueran* (one of the *Nicobar* islands). In this description he refers to the *white* and *red* kinds of *sandal* as follows :—

Page 376—"Their woods abound with the noblest and most valuable trees, such as the *white* and the *red sandal*', etc.

(42) Col. G. A. Jacob in his *Laukika Nyāyāñjali* (Handful of Indian Maxims) Part III, N. S. Press Bombay, 1911, p. 46, records an interesting

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21. The *Yogavāsiṣṭha* (nirvāṇa prakaraṇa uttarārdha—sarga 66, verse 9) refers to the white moon-light and compares it with the white *Candana paste* :—

—"Candraścarcācaturdikkaṁ *candane*nātmatejasā |
racayanrātrirohiṇyostamo hantyapi hṛdgatam || 9 ||"

(Vide p. 4861 of *Acyuta Magazine*, Benares—*Jyeṣṭha—Āṣāḍha* Number, 1947).

simile based on *candana* from the *sūtras* of *Bādarāyaṇa* and the comments of the great philosopher Śaṁkarācārya on it as follows :—

"Candananyāyaḥ

The simile of *sandal-oil*. Bādarāyaṇa uses this as an illustration in *sūtras* 2. 3, 23, 24. As the application of a drop of the oil to one part of the body produces a pleasant sensation in the whole of it, so soul, abiding in one part, namely in the heart, is yet perceived as present in the entire frame. Śaṁkara's exposition of the former *sūtra* is as follows :—

Yathā *haricandana*binduḥ śarīraikadeśasambaddho'pi san sakaladehavyāpinamālhādaṁ karotyevamātmāpi dehaikadeśasthaḥ sakaladehavyāpinīmupalabdhiṁ kariṣyati tvaksambadhāccāsya sakalaśarīragatā vedanā na virudhyate । tvagātmanoḥ saṁbandhaḥ kṛtsnāyāṁ tvaci vartate । tvak ca kṛtsnaśarīravyāpinīti"

In this explanation Śaṁkara presumes *candana* of Bādarāyaṇa to be identical with *Haricandana* (yellow sandal). I cannot say how far this presumption is correct as Śaṁkara lived in the *8th century* A.D. while the *sūtras* of *Bādarāyaṇa* are a few centuries earlier in date than Śaṁkara.

(43) The Kashmirian poet Bilhaṇa in his poem *Vikramāṅkadevacarita* (ed. by Bühler, B. S. Series, Bombay, 1875) composed about A.D. *1085* describes the warlike expeditions of King Vikrama of Kalyāṇ. In this description he states that Vikrama destroyed the *sandal wood forests* of the *Malaya* hills and slew the lord of Kerala (Canto IV, verses 1-18).

Other references to *candana* in this poem are :—
Page 12 — "*Cāndanalepapāṇḍubhıh*......stanaiḥ"
Page 17 — "Ārdra*candanaṁ*"
Page 26 — "Malayādrikuñja" and "*candana*vāyu"
Page 28 — "Malayadrumāḥ", "*candana*vāyu", *candana*nisyanda"
— "gajonmūlitanikṣipta*candanadruma*sampadaḥ"
Page 46 — "*Candana*rasa"
Page 59 — "*Candana*pallavānāṁ"
Page 62 — "*Candanā*dreḥ"
Page 74 — "*Candana*paṅkavāpī"
Paga 83 — "*Candanapādapā*nāṁ" malayānilāḥ"
Page 97 — "*Candana*lepa"
— "Kṣipyatāṁ Kvacana *candanapāṇḍucandrikārasa*bbharaḥ kalaśībhiḥ"

Even if the description of the sandal-wood forests on the Malaya mountain and their destruction by the elephants of Vikrama is considered as poetical bombast it cannot be denied that in Bilhaṇa's time the Malaya

mountains were producing a large number of *candana* trees. My suggestion that these *candana*[22] trees were of the *white sandal* gets confirmation from Bilhaṇa's use of the term pāṇḍu (whitish) as applied to *candana* in the expressions "*candanalepapāṇḍubhiḥ*" breasts ... appearing *whitish* by the sandal paste) and *candana pāṇḍuḥ candrikā rasabharaḥ* (moonlight whitish on account of the *candana* paste). I am inclined to suppose that in Bilhaṇa's time (*11th century* A. D.) the *white sandal* was extremely popular in India and had perhaps put into the background the other varieties of *candana* of different odours so minutely described in the *Arthaśāstra* of *Kauṭilya*.

(44) In the *Harivaṁśa* (ed. with Marathi Trans. by Viṣṇuśāstri Bapat, Wai, 1911) we notice some references to *candana*, some of which may be noted below :—

Page 16 — "(*Harivaṁśamāhātmya*)
— "*Candanā*gurukarpūrakuṅkumairgandhakādibhiḥ ‖ 12 ‖"
Page 301 —"(*Viṣṇuparva-chap.* 89)
— "Rajobhiḥ sarvapuṣpānāṁ pṛktaś*candanaśaityabhṛt* ‖ 73 ‖"
— "Reme balaś*candanapaṅkadigdaḥ* (verse 1)"
Page 301 — "(*Viṣṇuparva*, chap. 70, verse 71)
— "Hārāścamaṇayaścaiva *candanānyagurūṇi* ca"

(45) In the *Sārṅgadharpaddhati* (ed. by Peterson, Bombay, 1888, vol. I, pp. 468-9) we get the following references to *candana*, *Malaya* and *Malayaja* :—

Dhūpāḥ	Stanza	3255 — malayaja
	"	3256 — candana
	"	3257 — candana
	"	3259 — malaya (= Malayaja)
Dhūpavartiḥ	"	3260 — candana
Dīpavartiḥ	"	3262 — malaya (= malayaja)
	"	3263 — candana

(46) Mr. C. E. Fischer published in 1938 a very scholarly article on "Where did the sandalwood tree (*Santalum Album* Linn.) evolve ?" in the *Journal of the Bombay Natural History Society, December* 1938) pp. 458–66. In this article he has recorded *evidence in favour of an*

22. In Bilhaṇa's *Caurapañcāśikā* (ed. by S. N. Tadpatrikar, Poona, 1946, p. 4) we get a reference to *Candana* in the following stanza 8 :—

—"Adyāpi tāṁ mastṛṇa*candana*paṅkamiśrakastūrikāparimalotthavisarpigandhām"

Indian origin of the *white sandal (santalum album) and that opposed to an Indian origin.* I give below a brief analysis of this evidence :—

I — *Evidence in Favour of an Indian Origin.*

(*a*) *Rāmāyaṇa* refers to forests of *sandal* on the islands of the river *Tāmraparṇi.*

(*b*) In his epic poem *Chilappatikaram Ilanko-Atikal*, the *Tamil poet* (between 2nd and 5th cent. A.D.) speaks of *sandal* born in the Southern Mountain (*Malaya Tenmalai piranta chantanam*).

(*c*) *Kālidāsa* (not later than 5th cent. A.D.) refers to *sandal*, derived from South India (see *Raghuvaṁśa*, IV, 48, 51).

(*d*) *Pañcatantra* (not later than 5th cent. A.D.) refers to *sandal*, as not flourishing any where except on *Malaya.*

(*e*) *Rājaśekhara* (A.D. 880–920) in his *Kāvyamīmāṁsā* speaks of the *Malaya* mountain as the homeland of the delightful true *sandal.*

(*f*) *Hitopadeśa* (II, 163) refers to *sandal* trees infested by serpents.

(*g*) The *Periplus of the Erythrean Sea* (2nd cent. A.D.) refers to "... *sandal* wood, teak, ebony and black-wood, imported from Baragaza (Broach) in Western India to Apologus, an important harbour at the mouth of the Euphrates."

(*h*) Kauṭilya's *Arthaśāstra* (between 320 B.C. and 300 A.D.) Chap. XI, includes *sandal* among objects entered into treasury.

(*i*) Buddhist *Jātaka* Stories (7th cent. B.C.) mention *sandal* as article of toilet.

(*j*) *Sandal-wood* was one of the articles of commerce brought from India to the Roman Empire.

(*k*) Francis Buchanan in *Travels* in Canara and Mysore (A.D. 1807) refers to *sandal* tree found in quantities at many places. "The *quantity* brought from Coorg during the years 1792 to 1798 amounted to about 12000 candies."

II — *Evidence opposed to an Indian origin.*

(a) *Ain-i-Akbari* of Abul Fazl (1551-1602 A.D.) Vol I, Ain 30, page 81 refers to *chandan* as follows :—"9. *sandal-wood* called in Hindi *Chandan*. The tree grows in China. During the present reign it has been successfully planted in India."

(b) *Garcia da Orta* (A.D. 1562) refers to the introduction of the sandal tree in his *Colloquies* etc. p. 399.

(c) *Cosmos (Indicopleustes* — about A.D. 545) Hak. Society, Vol. 98, p. 363, concerning Taprobane (*Sumatra*), refers to the importation of *sandal-wood* to India from the Malay Archipelago.

(d) *Ebn Baithar* (about A.D. 1250) in his account of eastern medical plants (ed. by Dr. J. Sontheimar, 1842, p. 138) states that the name *sandal* "betokens a wood brought from China."

(e) *Barbosa* (c. A.D. 1500) mentions the uses of *sandal-wood* in India. He asserts that it occurs in Timor and in no other locality. He does not include it in the products exported from Cochin or Calicut. His evidence is important as he was employed in commerce on the Malabar coast.

(f) *Magellan* (*First Voyage* etc., Hak. Soc. Vol. 35, page 153) states in reference to *Timor* that "... *white sandal-wood* only grows in this country."

(g) The *records of the East India Co.* (*The English Factories in India*, 14 Vols. 1618-1677 A.D.) refer to a considerable trade in *sandal-wood* but there is no record of the wood being obtained in India.

After discussing the evidence briefly indicated above Fischer puts forward the following theory :—

"At a very early period a scented wood (or woods) was produced by a tree growing in India probably mainly in the South. This wood was used for various purposes and went by the name of *chandan*. Later on the wood of *santalum album* began to be imported and as it became more and more available, gradually replaced the indigenous wood. At first it may have shared the same name and in due course supplanted the original even in that respect. Eventually some enlightened person thought of introducing the plant itself, but the spread except where enforced, would be slow. The fact that the tree where it grows at present appears to be indigenous need not impress one greatly when one considers the establishment of other non-indigenous plants in India. Who seeing lantana or prickly-pear-infested localities would imagine that they are aliens, were the history of their introduction not known? I must now leave the decision to my readers."

The above Theory is cogent enough in the light of the evidence recorded by Fischer. Granting that the *white sandal* (*santalum album*) was introduced into India from outside as postulated by Fischer, we have to see at what time it was planted on Indian soil. In this connection

the references to *white sandal* (*śveta candana*) collected by me from Sanskrit sources would be found useful. Before tabulating these and other references chronologically I shall record a few more references to *candana* with a view to making this study as comprehensive as possible.

(47) I have to record most gratefully the following remarks of my friend Mr. A. S. P. Ayyar, M.A., I.C.S., District and Sessions Judge, Chittoor, regarding *candana* in Tamil sources :—

12-6-47 — "I find in the Tamil *Silappadikaram* (The Lay of the Anklet, an epic whose date is put variously between the 2nd and 5th century A.D.) the hero, Kovalan, drawing figures with sandal paste (*chandanam*, no mention of *white* or *red*) on the breasts of his beloved, Kannaki. It is the custom in Malabar and the south country still for the bridegroom to daub a woman's breasts with sandal paste on the nuptial day ! Of course the drawing of figures is a poet's fancy, the figures drawn being *Kāma* and *Rati* !"

3—7—47 — "Now as to *sandalwood*—*Silappadikaram* is a Tamil book having only about 11% of Sanskrit words in it, the remaining 89% being purely Dravidian (Sumerian, Proto-Indian or whatever its origin !). It does not of course say "*Malayaja*" *Chandanam* but merely *chandanam*. I give you below the exact reference you want ;—(1) In *Book I* (song of Benediction) you find this :—"Lovely maidens bringing spices and flowers spoke and sang and looked bewitching. Women with full breasts and lovely tresses took with them *sandal-paste* (chandanam), frankincense, perfumes and powders," and distributed them at the marriage of Kovalan and Kannaki, just as such ladies do even today in our Tamil Nadu. I never heard of any sandal paste being distributed at marriages except our usual *white* or *yellow sandal paste*. (2) In canto 2 of *Book I*, *Kovalan* (Sanskrit *Gopalan*) paints on the broad shoulders and full breasts of *Kannaki* (in the privacy of the nuptial chamber) the sugar-cane (Kāma's bow) and *Kamanalli* (the heavenly creeper representing *Rati*) with *sandal paste*. He tells her, "with *sandal-paste*[23] figures painted on your beautiful breasts, what need is there for a string of pearls on them ?"

There are some other references to *chandanam* in the book. But these would suffice. Please remember that the patron Saint of *Tamil*

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23. The practice of applying Sandal paste to breasts in a marriage ceremony referred to in the Tamil work may be compared with the following verse in the *Carakasaṁhita* (*cikitsa-sthana*, Chap. 29—vātarakta-cikitsita—p. 633 of N. S. Press Edition, 1941) :—

—"*Candanārdastanakarāḥ* priyā *nāryaḥ* priyaṁvadāḥ | sparśaślāḥ sukhasparśā ghnanti dāhaṁrujaṁ klamaṁ || 130 ||"

Here *Caraka* prescribes an agreeablecompany for the patient suffering from *vāta-rakta*.

Nadu, who gave it its alphabet, grammar and institutions was *Agastya Kumbhayoni* the twin brother of *Vasiṣṭha*, the Aryan sage and that his abode was *Agastyaparvatam* hill or *Chandanachala* (*Malaya*) in Travancore (called also Podiyil Hills). Of course, the *Silappadikaram* may only date from the *5th cent* A.D., though Dr. Krishnaswami Aiyangar and Prof. Nilakanta Sastri put it in the *2nd cent* A.D."

(48) *Cakrapāṇidatta* (c. A.D. *1060*) while commenting on the term *haricandana* in *Carakasaṁhitā* (*Sūtrasthāna*, Chap. 8, para 9—p. 341 of N. S. Press Edition, 1941) equates *haricandana with śvetacandana* (white sandal) as will be seen from the following extract :—

—"*Haricandanaśabdena* śvetacandanaṁ vivakṣitaṁ, hariśabdasya anekārthatvāt *hariśabdena śvetasyaiva* grahaṇaṁ praśastatvāt"

The opinion of Cakrapāṇidatta that *Haricandana* of *Caraka* is identical with *Śveta candana* or white Sandal appears to be unwarranted[24] as we are not quite sure if the *śvetacandana* was known to *Caraka* and secondly Kauṭilya in his passage on the varieties of *candana* mentions *Haricandana* as having the colour of the feathers of a parrot, and smelling like tamarind or mango fruit." (haricandanam śukapatravarṇamāmragandhi). Evidently the testimony of Kauṭilya in explaining the *Haricandana* of *Caraka* is more useful to us than that of Cakrapāṇidatta who flourished more than 600 years after these authors.

(49) The poet Māgha (c. A.D. 625), in his *Śiśupālavadhakāvya* (canto XI, verse 14) refers[25] to *malayajarajas* (sandal-dust) the whiteness of which is first compared to the whiteness (*dhavalimā*) of the moon and then contrasted with the colour of saffron (*kuṅkuma*). The western quarter

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24. Similarly Cakrapāṇidatta explains the term *candana* as [illegible] and [illegible] as [illegible], Chap. 3 of [illegible] (P. 422 where the recipe of [illegible] is recorded by Caraka. The correctness of this explanation is also open to doubt.

25. Verse 14 of Canto XI of *Śiśupālavadha* (p. 283 of N. S. Press Edition, Bombay, [illegible]) :

—"[illegible] ॥ 14 ॥"

Mallinātha (c. A.D. 14[illegible]) explains :—

"[illegible] ।"

This is a [illegible] of the moon as [illegible] in the western quarter.

(paścimāśā) looks beautiful on account of the white moon's rays coloured slightly with the red glow of the evening sky, (at sunset). The western quarter looks beautiful like a lady having on her body a mixture of white *Malayaja* dust (or paste) and the colour of saffron. The slight contrast of the white and saffron colour, instead of marring the beauty of the lady, only tends to heighten it.

This is the earliest reference to the *Dhavalima* or *whiteness* of the *Malaya-born sandal* so far discovered by me in Sanskrit literature. This reference is earlier than the reference to the *Malayaja sandal* and its whiteness referred to by *Vāmana* (c. A.D. 800) in his *Kāvyālaṃkāra-Sūtravṛtti* in his description of *abhisārikās*.

(50) Vṛnda in his *Siddhayoga* (ed. in Anandashram Sans. Series, Poona, 1894, p. 400 – Chap. 56—masurikādhikāra, refers to *two kinds of sandal*, *candanadvayam* as follows :—

"Vāsam durālabhām [illegible] candanadvayam"

The commentator Śrīkaṇṭhadatta in his *Vyākhyākusumāvalī commentary* (c. A.D. *1240*) *on the Siddhayoga* of Vṛnda[26] (*9th or 10th cent. A.D.*) explains the term *candanadvayam* as follows :—

"*Candanadvayam śvetacandanaṃ raktacandanaṃ* ca"

Elsewhere (p. 210) this commentator explains *candana* in the *Siddhayoga* as *Śvetacandana* and on p. 304 *candana* in Vṛnda is explained to mean *śveta-candanaṃ raktacandanaṃ* (iti īśānaḥ)

(51) The theory adumbrated in the present paper that the *Malayaja* sandal is identical with *white sandal* gets additional support from the following evidence of the Bengali commentator Aruṇadatta (c. A.D. 1220) :–

The *Aṣṭāṅgahṛdaya* (*Sūtrasthāna*, Chap. 15, verse 11, p. 235, of Paradkar Shastri's Edition, N. S. Press, Bombay, refers to a term *śiśiradvayam* in the following verse :—

"Sārivośīrakāśmaryamadhūka*śiśiradvayam* I *yaṣṭī* [illegible] hanti [illegible]jvarān II 11 II"

Aruṇadatta explains :—

"Śiśiradvayam-ekaṃ *sitacandanaṃ*[27] *malayajasaṃjñam* [illegible] *candanasaṃjñam*."

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26. See p. 179 of D.K. Shastri's "*Ayurvedano Itihas*" (Ahmedabad, 1942) where Kaviraja Gananath Sen's view on this date for *Vṛnda* is quoted.

27. *Vāmana* in his *Saṃkhyāyana gṛhyasaṃgraha*, (Benares Sans. Series, 1908, p. 10) mentions *Śītacandana* :—

"Vividhānāṃ vṛkṣāṇāṃ I varaḥ [illegible] [illegible]" etc.

Arunadatta states clearly that the term *śiśiradvayam* means two kinds of *candana* viz. (1) one, *white sandal known as malayaja* and (2) the other known as the *red sandal*.

Elsewhere (p. 236 — *Sūtrasthāna*, Chap. 15, verse 19) Aruṇadatta explains the term *trihima* mentioned in the *Aṣṭāṅgahṛdaya* as follows :—

"Trihimaṁ candanatrayam, *malayajaraktacandanadāruharidra-bhedena*."

It is clear from the above evidence that in the medical circles of Bengal about A.D. 1200 a variety of sandal was known as *Malayaja* and further this sandal was *white*, as expressly stated by Aruṇadatta.

We must now try to trace the earliest references to the *Malayaja sandal*. With a view to helping further research in this subject I record below a tabular statement giving the chronology of the references to *candana* and its varieties as disclosed by the varied evidence gathered by me in this paper :—

Chronology	*Reference*
Between B.C. 100 and A.D. 300	—*Rāmāyaṇa* contains many references to *candana*, *haricandana*.
Between B.C. 300 and A.D. 400	—*Jātakas* mention *candana* and *Kāsika-candana*.
Between B.C. 200 and A.D. 300	—References to *sandal-water* and *red sandal-wood* in the *Mahābhārata* (Droṇaparva and Karṇaparva).
c. 150 B.C.	—*Patañjali* in his *Mahābhāṣya* mentions *candanagandha*.
c. A.D. 80-90	—*Periplus of the Erythrean Sea* refers to *Sandal-wood* exported from *Broach* to a port at the mouth of Euphrates.
c. A.D. 150	—*Aśvaghoṣa* mentions *candana* and *Lohita candana* (Saundarananda).
	—*Bhāradvāja-gṛhyasūtra*" (ed. by Salomons, Leyden, 1913) mentions "*sarva-surabhiviṣṭaṁ candanaṁ ca*" (II, 18-page 50) and "*candanenānulepsyamānaḥ*" (II, 20-page 50).
	—*Agniveśya-gṛhyasūtra* (Trivandrum, 1940) mentions *candana* (p. 71) and *raktacandana* (p. 74). It refers to *tambula—tambulādi dadyāt* (p. 131).

—*Apastamba-gṛhyasūtra* (Benares, 1928) p. 165 mentions *sarvasurabhicandanena* (V, 12, Sutra 7).

—*Harivaṁśa* (of the Mahābhārata) mentions *candana.*

—*Suśruta Saṁhita* mentions *candana* many times.

—*Bhela Saṁhita* mentions *candana* and *raktacandana.*

—*Kaśyapa Saṁhita* mentions *candana* in chapter on *dhūpas* and *elsewhere.* It mentions *raktacandana* also.

—*Caraka Saṁhita* mentions *candana* many times. It mentions *agryacandana* (Dhavalacandana) according to Cakrapāṇidatta).

—*Kāmasūtra* mentions *candana.*

—*Holy Bible* (Kings X 11 etc.) mentions a tree called *algum* or *almug* which is *sandal* according to some authorities.

—*Lalitavistara* mentions *candana* many times.

Between A.D. 200 and 600 —*Kāraṇḍavyūha* mentions *candana* etc.

—*Guhyasamājatantra* mentions *candana karpūra.*

Between B.C. 320 and A.D. 300 —*Arthaśāstra* mentions 15 varieties of *candana* with their colour and smell suchas,

gośīrṣaka, haricandana, tārṇasa, grāmeruka, daivasabheya, jāpaka, joṅgaka, taurūpa. 'māleyakaṁ' described as *pāṇḍurakta, kucandana, kālaparvataka, kośākāraparvata, śītodakīyaṁ, nāgaparvataṁ, śākalam* etc.

—The Jain work Jivājivābhigamasūtra mentions *maleyacandana.*

Between A.D. 100 and 400 —Kālidāsa mentions *candana* as growing on *malaya* mountain (in *Śakuntalam*) as also Kṛṣṇasarpa associated with it. In *Vikramorvaśīya* he mentions malaya and in *Ṛtusaṁhāra he refers to sitacandana* (white sandal).

A.D. 399—414	—*Fa-hsien* refers to *sandal-wood* from Bull's head (=gośīrṣa).
A D. 478-479	—Reference to *candana* used by Jain Arhats (Paharpur inscription).
Between A.D. 200 and 400	—The Tamil epic *Silappadikāram* mentions *candana*.
Between A.D. 200 and 800	—*Āryamañjuśrī-mūlakalpa* mentions *śvetacandana* and *śuklacandana* many times.
c A.D. 500	—*Malaya* (*sandal*) mentioned in the gandhayukti section of Varāhamihira's *Bṛhat Saṁhitā*.
A.D. 432-1200	—*Early Bengal Inscriptions* mention *karpūra*, *malayaja* (mentioned in Deopara Inscription) etc.
c.A.D. 545	—"*Sandal-wood*" (*Cosmos in Cathay* etc).
Between A D. 500 and 1000	—*Ahirbudhnya Saṁhitā* mentions *candana*, *Karpūra*, *Raktacandana*.
Between A.D. 500 and 800	—*Amarakośa* mentions *malayaja* and othervarieties of *candana*.
A.D. 750-800	—*Śaṁkarācārya* explains *candananyāya* of the *Bādarāyaṇa sūtras*. He mentions *Haricandana*.
	—*Pañcatantra* states that *candana* grows nowhere else, except on Malaya mountain.
Between A.D. 500 and 800	—*Dhanvantarinighaṇṭu* mentions *malayaja*, *śvetacandana* etc. among the names of *candana*.
c. A.D. 600	—*Śaśvatakośa* mentions *haricandana*.
c. A.D. 625	—Māgha refers to the whiteness (Dhavalimā) of *Malayaruha* sandal dust in his *Śiśupālavadha* (xi 14)
c. A.D. 630	—*Bāṇa* mentions *malayaja*, *candana* and *Haricandana* in his *Kādambarī*.
c. A.D. 650	—Shaman Li mentions *white candana trees* on Malayagiri as also *snakes* frequenting these trees.

A.D. 671-672 —*I-tsing* mentions sandal-wood paste.
—*Candana* and *Gopīcandana* mentioned in late *Vaiṣṇava Upaniṣads* like *Vāsudevopaniṣad*, *Gopīcandansupa*. *Rāmatāpanī upa.* etc.

A.D. 729-753 —*Gauḍavaho* mentions malayabhava (=malayaja)

A.D. 755-786 —*Kuṭṭanīmata* refers to candanapaṅka, candanadhūpa *etc.*

A.D. 800-950 —Vṛnda in *Siddhayoga* mentions *candanadvaya* which Śrīkaṇṭhadatta (A.D. 1240) explains as (1) *śvetacandana* and (2) *Raktacandana.*

c. A.D. 800 —Vāmana in his *Kāvyālaṁkārasūtravṛtti* mentions sandal in his description or *abhisārikās* going out in white moonlight to meet their lovers.

A.D. 880-920 —*Rājaśekhara* mentions *malaya* as the home of *candana.*

Between A.D. 900 and 1120 —*Vaṅgasena mentions Śvetacandana* (white *sandal*).

A.D. 973 —*Dhanapāla* mentions *malayaruhaṁcandanaṁ* (*Paialacchināmamālā*).

c. A.D. 1060 —*Cakrapāṇidatta* explains *Agryacandana* (mentioned by Caraka) as *dhavalacandana* (white sandal).

A.D. 1085 —Bilhaṇa refers to sandal-wood forests on Malaya.

c. A.D. 1090 —*Surasundarīcaria* mentions *malayaruha*, *Malayaja.*

c. A.D. 1130 —*Mānasollāsa* describes a *sandal* root *candanamūla.*

c. A.D. 1100 —*Aparārka* mentions *Śvetacandana.*

c. A.D. 1100 —*Mammaṭa in his Kāvyaprakāśa* mentions *malayaja* sandal in a verse (quoted from Vāmana's *Kāvyālaṁkārasūtravṛtti*).

A.D. 1088-1172 —Hemacandra mentions 9 kinds of *candana* including *Malayaja* which he explains *as* "*Malayādrerjātaḥ*". He also mentions 6 kinds of *red sandal.*

A.D. 1298 —"*Sandal*" (Marco Polo).
—Marco Polo refers to *white* and *red sandal* trees in Nicobar islands.

A.D. 1240 —*Śrīkaṇṭhadatta* mentions *śvetacandana* and *Raktacandana*.

A.D. 1250 —*Ebn Baithar* states that "sandal" betokens a wood brought from China.

A.D. 1220 —*Aruṇadatta* states that *sitacandana* was known in his time as *Malayaja* (*Malayaja-saṁjñam*).

A.D. 1300-1400 —*Śārṅgadharasaṁhitā* mentions *Tagaracandana* which is translated as *white sandal* by the translator of this treatise.

c. A.D. 1325 —*Śārṅgadharapaddhati* mentions *malayaja* (sandal).

A.D. 1390 —"*Saunders*" (Wright).

c. A.D. 1450 —Narahari in his *Rājanighaṇṭu* mentions two varieties of *white sandal* viz. (1) *veṭṭa* and (2) *Sukvaḍi*. He further states that the hills called *Veṭṭa* near Malaya produce *Veṭṭacandana*.

c. A.D. 1550 —*Bhāvamiśra* in his *Bhāvaprakāśa* mentions *Dhavalacandana*.

c. A.D. 1500 —*Barbosa* asserts that *sandal* occurs in Timor and in no other locality.

A.D. 1554 —"Santal" (Matthioli).

A.D. 1563 —"*Sandal*" growing in Timor called *Chundana* (Garcia).

A.D. 1584 —"Sandales" from Cochin and Malacca (Wm. Barret).

A.D. 1590 —*Ain-i-Akbari* mentions (1) *candana* as growing in China and (2) the plantation of candana trees in India in Akbar's reign.

A.D. 1613 —"*Sandal* trade" (Bocarro).

A.D. 1615 —"*Sanders-wood*" (Sainsbury).

A.D. 1618-1677 —Considerable trade in *sandal-wood* carried on by the East India Co.

A.D. 1807 —Buchanan refers to *sandal* trees in Mysore and Coorg.

A.D. 1813 —"Sandal" (red, yellow, white)— *Milburn*.

A.D. 1825 —"*Red Saunders*" (Milburn).

37. History of Mendî or Henna
(Between B. C. 2000 and A. D. 1850)*

In his "*Ancient Egyptian Materials and Industries,*" A. Lucas[1] deals with Cosmetics, Perfumes and Incense and observes: "Cosmetics are as old as vanity. In Egypt their use can be traced back to the earliest period of which burials have been found, and continues to the present day." About *henna* (Marathi मेंदी) Lucas records some valuable information which may be of interest to students of the history of Indian Cosmetics and Perfumery. I note some points from this information as they provide a historical back-ground for study of *henna* from Indian sources. These points are as follows :—

Pages 87-88 —

(1) Egyptian unguents are described by Theophrastus, the Father of Greek botanical science and friend of Aristotle, as also by Pliny the Roman historian who died in 79 A.D.

(2) Pliny (XII, 51) mentions an Egyptian unguent made from *Cyprinum*, an Egyptian tree, which was probably *henna*, the flowers of which are odoriferous.

(3) "In connexion with *henna* it may be mentioned that the leaves were possibly used in ancient Egypt, much as they are today, in the form of a paste to *colour the palms of hands, the soles of the feet, the nails and the hair*. Thus the Romans certainly employed *henna*, an Egyptian shrub for colouring the hair (*Pliny* XXIII, 46) and probably, therefore, the Egyptians also, and Elliot Smith describes the hair of the mummy of Henttawi (XVIIIth Dynasty *1580 to 1350 B.C.*) as being dyed a brilliant reddish colour, which he suggests, was done with *henna*. Naville states that the finger-nails of an Eleventh Dynasty (*2160 and 1788 B.C.*) mummy he examined were tinted with *henna* and Maspero thought that the hands of Ramesses II were stained "jaune-clair par les parfums," Elliot Smith, however, suggests that the latter were merely discoloured by the embalming material, which may be the case also with the mummy to

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Annals (B. O. R. Institute), Vol. XXVIII, pp. 14-25.

1. Second Edition, Edward Arnold and Co., London, 1934. Mr. Lucas has published another book "*Antiques : their Restoration and Preservation* published by this firm. I am thankful to Dr. P.M. Joshi, Librarian, Bombay University Library for drawing my attention to Lucas' books and lending them out to me.

which Naville refers, as it almost certainly is with the staining of the finger nails of several mummies examined by the author. Newberry has identified twigs of *henna* from the Ptolemic cemetery of Hawara (W.M. Flinders Petrie, p. 50).

Page 243

(4) "The *henna* plant (*Lawsonia inermis*) is a perennial shrub that grows abundantly in Egypt; it is cultivated in gardens for its strong smelling flowers and as a farm crop for its leaves, the chief use of which isas an article of toilet, a paste being prepared from them, with which the hands, feet, nails, and hair are coloured red; a decoction of the leaves is stated to be occasionally used for dyeing cloth.

That the finger and the toe-nails of mummies are sometimes stained has often been noticed. Thus Rouyer says that certain mummies had the palms of the hands, the soles of the feet and the nails of the fingers and toes stained red with *henna*."

If the use of the *henna* plant products for staining the finger and toe-nails etc was current in Egypt say about 2000 B.C. as claimed by several writers quoted by Lucas, we have to see when and how this "Egyptian shrub" migrated to India and its use for staining certain parts of the human body became current in this country. I propose, therefore, to record in this paper some data which might enable scholars to study the history of *henna* from Indian sources :—

(1) In the Marathi Dictionary (*Śabdakośa* by Date and Karve, p. 2528) we are informed that the *henna* plant is identical with *mendī* (मेंदी). Its leaves mixed up with कात and चुना are used by women for painting finger and toe-nails. A bunch of *mendī* fruits is called इसबंद and the *attar* from *mendī* flowers is called *hīna* (हीना). [Sanskrit—*mendhī*[1] (मेंधी)].

The *Śabdakośa* does not record any usages of the word from Marathi literature.

(2) In Apte's *Sanskrit-English Dictionary* we find the following entry about *mendī* without any usage :—

Page 879 :—"मेंधिका, मेंधी—Name of a plant (Mar. मेंदी) from the leaves of which a reddish dye is extracted wherewith to colour the tips and nails of fingers, the soles of the feet and palms of the hand."

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1. The *Śabdakalpadruma* (by Radha Kantadeva Bahadur) records the following entries about मेन्धिका and मेन्धी :— Vol. III, p. 782—"मेन्धिका. स्त्री, (मां शोभामिन्धयति प्रकाशयतीति । इन्ध+णिच्+ण्वुल्। टापि अत इत्वम्) क्षुपविशेषः । इति केचित् । मेहदी इति भाषा"

"मेन्धी. स्त्री, (मां शोभामिन्धयतीति । इन्ध+णिच्+अण् । गौरादित्वात् ङीष् ।) क्षुपविशेषः । इति केचित् । मेहदी इति भाषा"

(3) Brewer's *Dictionary of Phrase and Fable* informs us as follows about *Henna* :—

Page 598 — "*Henna*. The Persian ladies tinge the tips of their fingers with *henna* to make them a reddish yellow."

"The leaf of the *henna* plant resembles that of the myrtle. The blossom has a powerful fragrance; it grows like a feather about 18 inches long, forming a cluster of small yellow flowers."

—*Baker* : *Nile Tribes, Abyssinia*
Chap. i, p. 3.

(4) In the *New Encyclopaedia* (T.C. & E.C. Jack, London), p. 767, *Henna* is described as "the powdered leaves of *Lawsonia inermis*. These contain a red stain, used in *Persia* and *India* to dye the finger nails etc."

(5) According to *Shorter Oxford English Dictionary* (p. 890) the word appears to have been current in the English language for about 350 years as will be seen from the following entry :—

—"*Henna...1600* [a. Arab. See also *ALCANNA*]. The Egyptian Privet *Lawsonia inermis* (N.O. *Lythraceae*); the shoots and leaves of this plant used especially in the East, as a dye for parts of the body, or made into a Cosmetic with *Catechu*."

— " *Alcanna* — *na. 1625* [a. Sp. *alcana*, a. Arab. *al-henna* : see *Henna* and *Alkanet*]. Bot. Egyptian Privet (*Lawsonia intermis*, N. O. Lythraceae) or its leaves, etc., used by Orientals to dye parts of the body reddish orange ; *henna*."

— " *Alkannet*. ME. [? ad. *alcaneta*, dim. of *alcana*...var. *Orcanet*. (1) Dye-material yielding a fine red colour. (2) The plant whose *roots* yield the dye *Anchusa* or *Alcanna tinctoria*, N. O. *Boraginaceae*; Orchanet, Dyer's or Sp. Bugloss, Bugloss of Languedoc *1567* etc. (L. *Canescens*)."

The above entries show how *Henna* and its products had entered the European languages and settled there from *about A. D. 1550*. Unfortunately in our dictionaries no usages of the word have been recorded, though the *Henna* plant under its vernacular name *mendī* (मेंदी) is now grown in different parts of India and its dye used by Indian women to dye their fingers and toe-nails as in ancient Egypt of c. 2000 B. C.

(6) In the *Hobson-Jobson* (by Yule and Burnell, London, 1903) we get the following information about *Mendī* or *Henna* plant :—

P. 567 — *MENDY* — S. Hind. *mehndi* [*meṅhdī* Skt, *mendhikā*] the plant *Lawsonia alba*, Lam. of the N. O. *Lythraceae* strongly resembling

the English privet in appearance and common in gardens. It is the plant whose leaves afford *henna* used so much in Mahommedan countries for dyeing the hands etc. and also in the process of dyeing the hair. *Mehndi* is according to Royle the *Cyprus* of the ancients (see *Pliny* xii, 24). It is also the *Camphire* of Canticles, i, 14, where the margin of A. V. has erroneously *Cypress* of *Cyprus*.

1813 — " After the girls are betrothed, the ends of the fingers and nails are dyed red with a preparation from *Mendey* or *hinna* shrub."
— (Forbes, *Or. Mem.*, 2nd Ed. i, 55, also see i, 22).

C. *1817* — "... his house and garden might be known from a thousand others by theirextraordinary neatness. His garden was full of trees and was well fenced round with a ditch and *mindey* hedge."
— *Mrs. Sherwood's Stories*, ed. 1873, p. 71.

These usages of *Mendi* or *Henna* do not help us very much to trace the history of this Egyptian shrub in India as they are later than A. D. 1800.

(7) Nityanāthasiddha in his *Rasaratnākara* (*Vādikhaṇḍa*, chap 6, p. 49 of the Edition by Rajavaidya J. K. Shastri, Gondal, 1940) describes ताम्रवेध as follows :—

"भागा द्वादश तारस्य शुल्वस्य भागषोडश।
आवर्त्य कारयेत्पत्रं लिप्त्वा रुध्वा पुटे पचेत् ॥ ६६ ॥
महिन्दीपत्रनिर्यासैरेवं वाराणि षोडश।
रसगन्धशिलाभागान्क्रमवृद्ध्या विमर्दयेत् ॥ ६७ ॥"

I am of opinion that the expression "महिन्दीपत्रनिर्यासैः" in this extract means "the decoction of the leaves of महिन्दी or मेंदी or *Henna*." If my identification of महिन्दी with मेंदी is accepted we have in the extract some evidence of the use of मेंदी or *Henna* in Indian alchemy as early as the 13th century, to which Nityanātha Siddha has been assigned by scholars.[1] Even if this identification of महिन्दी with मेंदी is not found acceptable it cannot be easily brushed aside as we find from the following reference that the word "मेंदी" was actually current in India about 850 yearsago.

(8) In the *Suśrutasaṁhitā* (*Cikitsāsthāna*, chapter 25 मिश्रकचिकित्सित, verse 43) the following verse refers to a plant called मदयन्तिका and its

1. Vide pp. 202-203 of आयुर्वेदनो इतिहास by Pt. D. K. Shastri. Rajavaidya J. K. Shastri's Edition of the वादिखण्ड from which I have quoted the above extract is based on a MS dated *Vikrama Saṁvat 1632* = *A. D. 1576* (Vide p. 184 of this Edition).

leaves (पत्र) in the preparation of a fragrant unguent[2] (अङ्गराग) worthy of kings (नरदेव-योग्यः) :—

(P. 496 N. S. Press Edition, 1936)—

"हरीतकीचूर्णमरिष्टपत्रं
चूतत्वचं दाडिमपुष्पवृन्तम्।
पत्रं च दद्यान्मदयन्तिकाया
लेपोऽङ्गरागो नरदेवयोग्यः ॥४३॥"

Dallaṇa (c. A. D. 1100) the Kashmirian commentator of the *Suśrutsaṁhitā* comments on the above verse as follows :—

"हरीतक्यादि। अरिष्टपत्रं निम्बपत्रं फेनिलवृक्षपत्रं वा। चूतत्वक् आम्रत्वक्। मदयन्तिका 'मेंदी' इति लोके यस्याः पिष्टैः पत्रैः नखानां रागं स्त्रिय उत्पादयन्ति ॥४३॥"

Dallaṇa states that मदयन्तिका mentioned by the *Suśrutasaṃhitā* is identical with the plant मेंदी known in hisdays (c. A. D. 1100). He further takes care to inform us that ladies use the powder and leaves of मेंदी to paint their nails. This explanation clearly proves that मेंदी was cultivated in India in Dallaṇa's time. If Dallaṇa's equation of मदयन्तिका with मेंदी (or *Henna*) is supported by other earlier evidence we shall be in a position to infer that this Egyptian shrub entered India during the early centuries of the Christian era when the text of the *Suśrutasaṁhitā* was composed.

(9) Thakoresaheb of Gondal in his *History of Aryan Medical Science* (London, 1896) refers in the following remarks to *Henna* among new additons to *Indian Materia Medica* :—

Pages 122-123 — "About the middle of the present century, that is to say in 1867, Pandit Vishnu Vasudev Godbole published his "*Nighaṇṭaratnākara.*" It is a very popular work as it contains an epitome of all the

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2. In this unguent no fat or oil is mentioned as a constituent, but in verse 40 Suśruta refers to a fatty preparation for the face as follows:—

"मेदो मज्जा सिक्थकं गोघृतं च
दुग्धं क्वाथः क्षीरिणां च द्रुमाणाम्।
एतत्सर्वं पक्वमेकध्यतस्तु
वक्त्राभ्यङ्गे सर्पिरुक्तं प्रधानम् ॥ ४० ॥"

Lucas (p. 85) states that in ancient Egyptian Cosmetics *oils* and *fats* were freely used as vouched by ancient records, and by Greek and Roman writers. The use of alcohol in the perfumery of modern times which requires a knowledge of the *process of distillation* cannot havebeen known in ancient Egypt. Theearliest reference tothis process is that by Aristotle (*Meteorologica* I, 9, 11; II, 11, 3) in *4th cent. B. C.* Theophrastus (4th to 3rd cent. B. C.) and Pliny (1st. cent. A. D.) mention distillation, though the process was then in a primitive state. In Pliny's days and in the time of Theophrastus plants were steeped in oil and then pressed or boiled in oil.

previous treatises on Materia Medica, supplemented by about *fifty new herbs not referred to by older writers.* Among the new names we find *Elivaka* (aloes).[1] *Anannasa*[2] (pine-apple), *Peruka* (guava)[3], *Tamakhu* (tobacco),[4] *Pudina* (mint), *Medica*[5] (*henna*), *Sitaphala*[6] (custard apple), etc.

While admitting that *Henna* is a new comer to India I may observe that it migrated to this country sometime before A. D. 1100. The exact period of this migration, whether it was before the Muslim conquest of Sindh in A. D. 712 or after it, needs to be determined on documentary evidence. In this connection I may point out that Dallaṇa, who equates मदयन्तिका (of सुश्रुत) with मेंदी or Henna, elsewhere equates अश्वबला plant mentioned by सुश्रुत with हिस्फित्य of the तुरुष्क country and further states that अश्वबला is a kind of मेथिका with large leaves. In my paper[7] on *Aśvabalā* I have recorded Prof. A. K Shaikh's view that हिस्फिय mentioned dy Dallaṇa is equal to the Persian word "*Ispist*" or "Aspist", which means a fodder for horses, used in India, Persia and Turkey and known as "Lucerne grass." Is it possible to suppose that this हिस्फत्य or a variety of मेथिका came to India along with Persian horses[8] which were imported to India from very early times ? If such a supposition is historically tenable it may be possible to presume that the words मदयन्तिका and अश्वबला equated by Dallaṇa with मेंदी or henna and हिस्फित्य or a variety of मेथिका respectively, were Indian names of foreign plants, which migrated to India long before the Muslim conquest of Sindh in A. D. 712. We must, however, collect more data pertaining to the relics of early Indo-Persian contact in the wealth of linguistic material bearing on *materia medica* available in the early medical texts like the *Carakasaṁhitā*, the *Suśrutasaṁhitā* etc. In this way alone we can understand the historial background of each item in the ancient Indian *materia medica*, which got enriched by foreign contact through centuries of political and cultural vicissitudes.

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1. Vide article on *Aloes* in *Hobson-Jobson* (p. 16). Pliny (*A. D. 70*) states : "The best *Aloe* (Latin the same) is brought out of India."
2. Vide article in *Hobson-Jobson* (pp. 23-28) — Usages of 'Pine—apple' recorded here are from *A. D. 1585* onwards.
3. Vide *Hobson-Jobson* (pp. 399–400) — Usages from *A. D. 1550.*
4. Ibid, pp. 924-926 — Usages from *A. D. 1550.*
5. Ibid, p. 567(*Mendy*).
6. Ibid, pp. 284–286 (Custard Apple) — Usages from *A. D. 1672.*
7. See pp. 67-80 of *Bharatiya Vidya*, July 1946.
8. Vide my paper on Persian Horses imported to India from c. A. D. 600 onwards in *Poona Orientalist*, Vol. XI, 1946.

(10) In the *Ain-i-Akbari* (c. A. D. 1590) Abul Fazl records the *Regulations of the Perfume Office* (Pages 65-75 of Gladwin's Trans. Vol. I, Calcutta, 1897) in which there is a list of Flowers. This list contains *Henna*, which is described (p. 72) as follows :—

"*Henna* has four petals and every shrub bears a different coloured flower."

Elsewhere (p. 328) the *Ain-i-Akbari* refers to *Henna* as follows :—

"Excellent *Henna* of a high colour is also to be procured here (i. e. at *Byaneh* in the Soobah of Agra". Perhaps the oil of *Henna* is meant in this reference.

I may note here that the *Rājavyavahārakośa* (c A. D. 1676) composed by Raghunātha Paṇḍita mentions cosmetics and perfumes with some foreign names for them current in the 17th century. There is no reference to *Henna* in the verses[1] which mention these cosmetics and perfumes.

(11) As regards मदयन्तिका equated by Dallaṇa with मेंदी (or *Henna*) I have to observe that this word is found in the *Aṣṭāṅgasaṃgraha* of Vāgbhaṭa II (about 8th or 9th century A. D.) in the following contexts :—

(i) चिकित्सितस्थान (chap. 2, verse 27 — *p.* 579 of N. S. Press Edition, 1939). In the treatment of leprosy or रक्तपित्त Vāgbhaṭa prescribes मदयन्तिका along with other drugs as follows :—

"पटोलमालतीनिम्बचन्दनद्वयपद्मकम् ।
रोध्रो वृषस्तन्दुलीयः कृष्णापृम्मदयन्तिका ॥ २७ ॥"

Hemādri (A. D. 1260) explains मदयन्तिका as यूथिका, which is a kind of Jasmine.

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1. See राजव्यवहारकोश (Shivaji Press, Poona, 1880, p. 8) भोग्यवर्ग — Verses 90-94 read as follows :—

"खुषबोय् इति तु प्राहुः सुगन्धिद्रव्यनामकम् ।
कस्तूरी मुष्कमित्युक्ता मात्मिकं त्वंबरं विदुः ॥ ९० ॥
चोबा त्वगस्सारः स्यादगंजा यक्षकर्दमः ।
जबादी नाम मार्जारमद इत्यामनन्ति हि ॥ ९१ ॥
गुलालः स्याद्रक्तचूर्णम् अबीरं गन्धचूर्णकम् ।
अत्तरः पुष्पसारः स्यादस्तुमारोऽर्कनामकः ॥ ९२ ॥
मकरन्दो गुलाबः स्यात् केसरं जाफरा भवेत् ।
मल्लीतैलं मोगरेलं चमेली जातितैलकम् ॥ ९३ ॥
तथा चम्पकतैलं चापेलमिति कीर्तितम् ।
ऊदो धूपो लिप्तपात्रं मर्दबानमितीरितम् ॥ ९४ ॥

I cannot say if the term अत्तर in verse 92 includes the *attar of Rose* and the *attar of Henna*.

(ii) उत्तरस्थान (chap. 7 — अपस्मारप्रतिषेध — verse 22) *p. 803* — Here मदयन्ती is a constituent of the पञ्चगव्य preparation but the commentator Aruṇadatta does not explain the word

The *Aṣṭāṅgasaṁgraha* of Vāgbhaṭa I (c. 625 A. D.,) refers to मदयन्तिका (उत्तरस्थान - chap. 8 - अमरक्षाविधि — p. 78 of Chitrashala Press Edition, Poona, 1940) as an antidote against poison as follows :—

"तत्रातिविषारवेताकाकम्याचीमदयन्तिकाकल्के क्षीरसिद्धं
सर्पिर्नस्ये पाने च विदध्यात् ॥ ३६ ॥"

The commentator इन्दु does not explain the word मदयन्तिका but the editor Pt. R. D. Kinjavadekar explains it as मल्लिका (मोगरी, बलमोगरा).

The *Amarakośa* does not contain the word "मदयन्तिका" though it mentions यूथिका. The lexicon *Vaijayantī* (c. A. D. 1500) refers to मदयन्ती in the following line :—

"शतमोर्म्यदयन्ती गवाक्षी तृणशून्यकम्" (see p. 60 of Gustav Oppert's Edition of Vaijayantī). Oppert explains मदयन्ती as "Arabian jasmine ... *Tamil*: Mallikai".

In view of the above evidence about मदयन्तिका which contradicts Dallaṇa's equation "मदयन्तिका = मेंदी" we cannot be sure if the term मदयन्तिका does really mean मेंदी or Henna. We must, therefore, try to find out some explanation of मदयन्तिका in sources earlier than A. D. 1000.

(12) Mr. K. M. Vaidya in his अष्टाङ्गहृदयकोष (Trichur, 1936, p. 418) explains मदयन्तिका as " नखरञ्जको नाम वृक्षविशेषः। यस्याः पिष्टैः पत्रैर्नखानां रागं स्त्रिय उत्पादयन्ति।[1] " पत्रं च दद्यान्मदयन्तिकाया लेपोऽङ्गरागो नरदेवयोग्यः " इति सुश्रुतः ". He then records the vernacular and foreign names of मदयन्तिका as follows :— हिं—मेहदी, मेंदी, मयिन्दिए ; बं—मेहदी, मेदी ... ... पा (Persian) — हिना ; अ (Arabic) योरन्मा, हिन्ना अकान् काफलयुन ... ... तु (Tulu ?) — मदरेंगि ...... **French** — *Henne* ; **English** — *Henna* Samphire ; **Latin** — *Lawsonia alba.*

नामानि— " तिमिरः कोकदन्ता च द्विपृन्तो नखरंजकः "
गुणाः — " रक्तरङ्गा दाहहन्त्री वान्तिकृच्छ्लेष्मकुष्ठहा ।
बीजमस्या ग्राहकं तु शोषकं च प्रकीर्तितम् ।
भूतग्रहाणां दोषं च ज्वरं चैव विनाशयेत् "

Vaidya remarks :— " मल्लिका इति बहवः। नवमल्लिका इति एके ". He explains मदयन्ती as " नखरञ्जकः। घातको इति इन्दुः। ' काठमल्लिका ' इति हारायणचन्द्र।"

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1. This statement is taken from Dallaṇa's commentary on सुश्रुत as I have already shown in this paper.

(13) *Rasarṇava* (c. 12th century A. D.) an important work on alchemy (ed. by Sir P. C. Ray and Pandita Harischandra Kaviratna in *Bib. Indica*, Calcutta, 1910) refers to मदयन्तिका in the following extract from its *5th Paṭala* (ओषधिनिर्णय) :—

Page 66 — " मञ्जिष्ठा कुङ्कुमं लाक्षा खदिरश्चासनं तथा ।
रक्तवर्गस्तु देवेशि—पीतवर्गमतः शृणु ।
कुसुम्भं किंशुकं रात्री पतङ्गो मदयन्तिका ॥ ३१ ॥"

In the Glossary at the end of his edition of *Rasarṇava* Sir P. C. Ray explains कुसुम्भ = Safflower (*Carthamus tinctorious* ; किंशुक = *Palaśa* having flowers of 4 colours (*Butea frondosa*) ; रात्री = हरिद्रा (Turmeric) ; पतङ्ग, (= पत्तङ्ग) *Caesalpinia Lappan*, Beng. *Vakam* and मदयन्तिका = नवमल्लिका. A sort of jasmine, *Beng. Kaṭa mallika*.

As मदयन्तिका is included in the पीतवर्ग or plants yielding yellow dye it is difficult to equate it with *Henna* which produced red or reddish dye.

(14) While this paper was being drafted I discovered the following additional references to मदयन्तिका in the *Suśrutasaṁhita*—

(i) चिकित्सास्थान, chapter 2 (व्रणचिकित्सित) —कल्काः

Page 414 — " नैपाली जालिनी चैव मदयन्ती मृगादनी " (verse 91).

Dallaṇa explains :—

" नैपाली मनः शिला । जालिनी कोशातकी ।
मदयन्ती मेन्दिका नखरञ्जनी । मृगादनी इन्द्रवारुणी ।" etc.

(ii) चिकित्सास्थान, chap. 9, verse 34—

Page 445— "त्रिफला त्वक् त्रिकटुकं सुरसा मदयन्तिका "

Dallaṇa explains :—

"मदयन्तिका नखादिरागरञ्जनी मेहंदी (v. 1. महीन्दी) इति प्रसिद्धा "

Dallaṇa further quotes a passage from वृद्धवाग्भटीय (i. e. अष्टांगसंग्रह of Vāgbhaṭa, I) in which मदयन्ती is mentioned :—

" ... वृद्धवाग्भटीयं महानीलघृतं लिख्यते । यथा—
" मदयन्त्याः वचायस्याः सुरभ्याः प्रमेहस्य च " etc. (चि. ३२)

(iii) चिकित्सास्थान, chapter II, para 10 refers to " त्रायन्तिका " as follows :—

Page 453— " ततः प्रियङ्गु-अनन्ता-यूथिका-पद्मा-त्रायन्तिका ... ... "

Dallaṇa explains :—

" त्रायन्तिका मदयन्तिका " [1]

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1. In सुश्रुत. चिकित्सास्थान. Chap. 25 we get a reference to " मोदयन्ती " which Dallaṇa explains as " मल्लिका " :—

Page 496—Verse 33 :— " पिष्ट्वाऽस्य सर्वं सह मोदयन्त्या "

Dallaṇa :— "मोदयन्ती मल्लिकेति लोके ख्याता",

In verse43 मदयन्तिका (= मेन्दी) is referred to by सुश्रुत.

From the references recorded above we get the following equations according to Dallaṇa :—

(1) मदयन्ती or मदयन्तिका—मेन्धिका, मेंहदी (नखादि रागरञ्जनी or नखरञ्जनी) (v. l. महिन्दी)

(2) मदयन्तिका = त्रायन्तिका (सुश्रुत)

(3) मोदयन्ती — मल्लिका

I cannot say if त्रायन्तिका in *Suśruta* means मेन्दी (Henna), as in the अष्टांगहृदयकोष it is equated with त्रायमाणा (p. 275) and variously explained.

It is noteworthy that Dallaṇa distinguishes between मोदयन्ती and मदयन्ती or मदयन्तिका. Hemādri explains मदयन्तिका as यूथिका as we have already stated. The *Dhanvantari Nighaṇṭu* as quoted in the अष्टांगहृदयकोष (p. 430) also mentions मदयन्ती as the name of मल्लिका.

Whatever be the real meaning of मदयन्ती or मदयन्तिका mentioned in the *Suśruta* the fact remains that in Dallaṇa's time (c. A. D. 1100) it was understood as equivalent to मेन्दी or मेन्धिका or मेंहदी with its use for colouring the nails etc. as mentioned by Dallaṇa three times in explaining the word मदयन्तिका.

P.S. — My friend and colleague Mr. G.N. Shrigondekar, Librarian, B. O. R. Institute, informs me about the uses of *Mendī* now current in Mahārāṣṭra as follows :— "Ladies generally apply *Mendī* to the palms of hands, soles of feet and the forehead (between the eye—brows) and the nails of fingers in the month of *Śrāvaṇa* on the *Nāgapañcamī* day. *Mendī* is also used by ladies during the 7th, 8th and 9th months of their first pregnancy." I am thankful to Mr. Shrigondekar for this information. It is curious to note how this foreign shrub, *Mendī*, should get settled in India for more than a thousand years and also get identified with Indian life and culture, with its great capacity for absorbing all good and useful elements of foreign cultures.

Śrikanthadatta (c. A. D. 1240) in his comm. on Vṛnda's *Siddhayoga* (Ānandāśrama, Poona, 1894, p. 304) equates मदयन्तिका with "मेंहदी" in explaining an unguent (अङ्गराग) mentioned by Vṛnda (जङ्घाकषायविधि).

38. Some Notes on the History of the Almond (Badām) in India Between c. A. D. 100 and 1900*

Among nuts of great nutritive value the *almond* plays an important role. The Indian gymnasts are in the habit of eating almonds daily on account of their strength-giving properties. The almonds are largely used in Indian confectionery and cookery. The physicians also prescribe preparations of almonds for their patients after certain stages of recovery from serious types of illness. In view of this importance of the almond in Indian life and culture it is worth while recording some notes on the history of the almond in India on the strength of Indian sources.

The Marathi Dictionary *Śabdakośa* by Y. R. Date and C. G. Karve, Poona, Vol. V (1936), p. 2215, records the word *badām* in the sense of almond but does not give any usages of the word which might enable us to determine the exact time when the *badām* became current in the Marathi language. This Dictionary records *bādām* as the Persian word for the almond from which the Marathi word *badām* is evidently derived. I shall now try to trace the history of *badām* in the Sanskrit sources.

(1) Bhāvamiśra (c. A. D. 1550) mentions about "150 drugs (in his *Bhāvaprakāśa*) more than are found in *Dhanvantari Nighaṇṭu*, such as *Ahiphena* (opium), *Khakhas* (poppy seeds), *Kusumba* (safflower), *Methica* (fenu-greek), *Vātavairi* (almond) etc."[1]

(2) K. M. Vaidya records the following references to *Vātāma* (=almond) on p. 513 of his *Aṣṭāṅgahṛdayakośa*, Trichur, 1936 :—

(i) The *Aṣṭāṅgahṛdaya* of Vāgbhaṭa (about A. D. 850 according to Prof. Dinesh Chandra Bhattacharya)[2] refers to *Vātāma* in the

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* *Annals* (B.O.R. Institute), Vol. XXIX, pp. 99-106.

1. See pp. 119—20 of *Aryan Medical Science* by Thakore Saheb of Gondal, London, 1896.

2. See p. 135 of *Indian Historical Quarterly* (June 1947). Prof. Bhattacharya rejects Dr. Hoernle's chronology for medical works and records his own tentative scheme as follows:—

Before A. D. 600 — Haricandra.
Between A. D. 600 and 900 — Āyurvedasāra, Bindusāra, Siddhasāra etc.
About A. D. 850 — Vāgbhaṭa.
About A. D. 875-900 — Jejjaṭa.
A. D. 900-925 — Mādhavakara, who comes after Jejjaṭa according to Niścala.
About A. D. 950 — Candraṭa.
A. D. 975-1000 — Vṛndakuṇḍa.
A. D. 1040-1050 — Cakrapāṇi.

Sutrasthana, chapter 6, verses 120 and 123 (Pages 110 and 111 of N. S. Press Edition, 1939) :—

"वातामाभिषुकाक्षोडमुकूलकनिकोचकम्" ॥१२०॥
"वातामाद्युष्णवीर्यं तु कफपित्तकरं सरम्" ॥१२३॥

Hemadri comments :— "वातामागुरुमायान्तं-उत्तरापथे प्रसिद्धम्। वातामः -स्निग्धमधुरमज्जं फलम्। आक्षोडं मदनफलसदृशं मध्ये किञ्चिदुन्नतरेखम्। निकोचक-अङ्कोल-फलसदृशम्। प्रियालं चारफलम्।

(ii) The *Bhavaprakasa* gives the names of *vatama* as follows :—

"वातादो वातवैरी स्यान्नेत्रोपमफलस्तथा।"

and also mentions its properties :—

"वाताद उष्णः सुस्निग्धो वातघ्नः शुक्रकृद् गुरुः।
वातादमज्जा मधुरो वृष्यः पित्तानिलापहः।
स्निग्धोष्णः कफकृन्नेष्टो रक्तपित्तविकारिणाम्॥"

(3) The *Aṣṭaṅgasaṁgraha* of Vāgbhaṭa refers to *Vatama* in the following verse :—

"वातामाभिषुकाक्षोडमुकूलकनिकोचकम्।
उरुमाणं प्रियालं च बृंहणं गुरु शीतलम् ॥१७०॥"

(*Sutrasthana*, edited by V. R. Kinjawadekar, Poona, 1940, p. 62, chap. VII—अन्नस्वरूपविज्ञानीय). The properties of *Vatama* are referred in the following line of verse 176 :—

"वातामाद्युष्णवीर्यं तु कफपित्तकरं सरम्।"

According to Hoernle Vāgbhaṭa I, the author of the *Aṣṭaṅgasaṁgraha* belongs to about A. D. 625, while Vāgbhaṭa II, the author of the *Aṣṭaṅgahṛdaya* belongs to 8th or 9th cent. A. D. Prof. Dinesh Chandra Bhattacharya does not believe in this theory of two persons of the name Vāgbhaṭa. He believes that the *Aṣṭaṅgahṛdaya* and the *Aṣṭaṅgasaṁgraha* are the works of one author Vāgbhaṭa, who flourished about A. D. 850.[1]

(4) The *Suśrutasaṁhita* (*Sutrasthana*, chap. 46, p. 228 of N. S. Press Edition, Bombay, 1938) mentions *Vatama* in the following line :—

"वाताम—अक्षोड—अभिषुक—निचुल—पिचु—निकोचक—प्रभृतीनि ॥१८७॥"

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1. See *Annals* (B. O. R. Institute, Poona), Vol. XXV, pp. 217-230.

The commentator Dallaṇa (c. A. D. 1200 according to Dinesh Chandra Bhattacharya)[1] states that *Vatama* (almond) and other fruits[2] mentioned by *Suśruta* belong to *Uttarāpatha* or northern region ("वातामा-दीनि ...... उत्तरापथे जातानि तत्रैव प्रसिद्धानि"). Dallaṇa records the views of other commentators on *Vatama* and other names of fruits(mentioned by *Suśruta*) as follows :—

"केचिद् व्याख्यानयन्ति —
वातामः—मज्जमधुरस्निग्धो दीर्घाकारः ।
अक्षोडः—मदनफलाकारफलो मध्ये किंचिदुन्नतरेखान्वितः
पर्वतपिलुः "अखरोट्" इति लोके ।
अभिषुकः—"अभिषुः" इति लोके ।
निकोचकम्—औत्तरापथिकं कोलकफलम् ।
उत्तरापथादवगन्तव्यम् ।"

(5) The *Carakasaṁhita* (*Sūtrasthāna*, chap. 27, verse 157, p. 161 of N. S. Press Edition, Bombay, 1941) also refers to *Vatama* (almond) in the following verse :—

"वातामाभिषुकाक्षोटमुकूलकनिकोचकाः ।
गुरूष्णस्निग्धमधुराः सोरुमाणा बलप्रदाः ॥१५७॥"

The commentator Cakrapāṇidatta (c. A. D. 1050) observes :—

"वातामादयः औत्तरापथिकाः ।"

In view of these references to *Vatama* (almond) in earliest medical texts, the *Suśrutasaṁhita* and the *Carakasaṁhita*, as recorded above the statement of *Watt* (*Dictionary of Economic Products of India*, Vol. VI, Part I, p. 343) that *almond* is *"not mentioned by older writers"* is obviously incorrect.

The statement of Cakrapāṇidatta (c. A. D. 1050), Dallaṇa (c. A. D. 1200) and Hemādri (c. A. D. 1260) that *Vatama* belongs to *Uttarāpatha* or northern region is correct. When Ibn Battuta (A. D. 1325-1354) visited the Governor of Multan he presented this Governor "Some *raisins* and *almonds*." In this connection he observes :—"These are among the greatest gifts that can be made to them, since they *do not grow in their*

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1. See p. 132 of *Indian Histo. Quarterly* (June 1947)—"Dallaṇa's date is about 1200 A. D.; being cited by Hemādri, and himself citing Halāyudha."

2. *Quintus Curtius* [VII, 4, 26 (18)] speaks highly of "orchards and vineyards of Bactria (Bāhlīka) the heart of ancient Iran which was directly in the great trade route to India. (See p. 3 of *Bactria* by H. G. Rawlinson, Bombay, 1909). The fruits like *vatama* etc. mentioned by *Suśruta* were possibly from ancient Iran where they were produced in abundance.

land and are imported from Khurāsān."[1] In the light of this statement we may safely conclude that almonds (*Vātama*) were imported into India from *Uttarāpatha* or northern region viz. Persia or Khurāsān specifically as stated by Battuta as they were not grown in India. Very probably the trade in *almonds* and other dried fruits from Persia with India was carried on from great antiquity.[2] This presumption is supported by the references to *Vātama* (almonds) in the *Carakasamhitā* and the *Suśrutasamhitā* as we have noted above. The continuity of this trade is further vouched by Bernier,[3] who mentions that "*Hindoustan* consumes an immense quantity of fresh fruit from *Samarakand, Balı (Balkh), Bocara* and *Persia*, such as *melons, apples, pears*, and *grapes*," "and likewise dried fruits, such as *almonds, pistachio*, and various other *small nuts, plums, apricots*, and *raisins*." It is worth while tracing the history of foreign[4] dried and fresh fruit imported into India from ancient times to the present day by sea and land. The early Sanskrit medical texts and their voluminous commentaries, if studied minutely, will yield ample material for such a study.

(6) Vaidya Bapalal G. Shah in his *Nighaṇṭu Ādarśa*, Vol. I (Ahmedabad, 1927), pp. 479-480 quotes the following verses from the *Bhāvaprakāśa* (c. A. D, 1550) and from the *Madanapāla nighaṇṭu* (c. A. D. 1375) :—

भावप्रकाशः— " वातादं उष्णः सुस्निग्धो वातघ्नः शुक्रकृत् गुरुः ।
वातादमज्जा मधुरो वृष्यः पित्तानिलापहः ॥ "
etc.

मदनपालनिघण्टु—
" बदाममुष्णं सुस्निग्धं वातघ्नं बलशुक्रकृत् ॥"

निघण्टरत्नाकर—
" बादामः सारकः चोष्णो गुरुरम्लः कफप्रदः ।" etc.

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1. Vide p. 189 of *Travels* ed. by H. A. R. Gibb, London, 1939.

2. Compare the ancedote about Syrian *figs* and *raisin* wine sent by Antiochos Soter of Syria to Bindusāra (*B. C. 298*) the father of Emperor Aśoka. This ancedote is "a tangible proof of the familiar intercourse between the Sovereign of India and his ally in Western Asia" observes Vincent Smith (See p. 147 of *Early History of India*, Oxford, 1914).

3. Vide pages 203-234 of *Bernier's Travels* (A. D. 1656-1668), Constable & Co., London, 1891.

4. The *Rajanighaṇṭu* (Anandashram, Poona, 1896) of Narahari (c. A. D. 1450) mentions a variety of grapes from *Uttarapatha* :—

Page 179 — द्राक्षा — "उत्तरापथिका प्रोक्ता कपिला सा फलोत्तमा । स्वादुपाका मधुररसा
मृद्वीका गोस्तनी स्मृता ॥५८॥

It is a matter for investigation whether any almond trees were cultivated in India between c. A. D. 1375 when the *Madanapalanighaṇṭu* was composed and c. A. D. 1550, the date of the *Bhāvaprakāśa* of Bhāvamiśra. I may here record the evidence of *Ain-i-Akbari* (c. A. D. 1590) regarding the *almond* as follows :—

Page 61 (Vol. I of Eng. Trans. of *Ain-i-Akbari* by Francis Gladwin, Calcutta, 1897).

— "*The Fruitery*—His Majesty is exceedingly fond of fruit, and by the great *encouragement he has given to the cultivation of fruit-trees*, skilful people have come with their families from *Persia* and *Tartary* and settled in this country."

— " ...... peaches, *almonds*, pistachios, pomegranates and many other fruits, have been *introduced* into *Hindustan*."

Page 63 — In the list of *Tartarian Fruits* almonds are mentioned as follows :—

" *Almonds* — 28 Dams per Seer
Almonds in the Shell — 11 Dams per Seer."

The above evidence warrants an inference that *almonds* were not grown in India prior to Akbar's reign, but Akbar encouraged their cultivation[1] in India along with the cultivation of many other Tartarian fruits by bringing expert horticulturists from Persia and Tartary.

If the reference to *Vātāma* (almond in the *Carakasaṁhitā*) is genuine we can compare it to the references to the *almond* made by Pliny the Elder (*A. D. 23-79*) in his *Natural History* (Books XII-XVI Trans. by H. Rackham, Loeb Classical Library, London, 1945). In particular the following remarks of Pliny on the *almond* are noteworthy:—*Page 351*—Books XV-XXIV, 88-91 :—

" A third variety of the nut class is the *almond*, which has an outer integument like that of the walnut, but thinner, and also a second covering consisting of a shell , but the kernel is unlike a walnut's in its breadth and its hard part is more bitter. It is doubtful whether this tree existed in

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1. A. K. Nairne in his *Flowering Plants of Western India* (London, 1894, p. 107) mentions the *almond* tree, *badam*, *Prunus amygdalus* as cultivated in the Deccan, along with the *Strawbery*, the *peach* tree and various *roses*.

Italy in the time of *Cato*,[1] as he calls almonds " *Greek nuts* " a name which some people also retain in the class of walnuts. At the present day the *almond* of *Thasos* and *Alba* are famous, and two kinds grown at *Taranto*, one with a brittle shell and the other with a hard shell which are very large in size and very little rounded in shape ... ... the *pistachio* (see Book XIII, 51, §83). This also was likewise first brought into Italy at the same time and it was simultaneously introduced into Spain by *Pompeius Flaccus*, Knight of Rome, who was serving with Vitellius."

Page 479 — " In the actual neighbourhood of Rome *Chestnuts* and *Cherries* only grow with reluctance and the *peach-tree* round *Tusculum* and *almonds are laboriously grown from graft*, also Tarracina teems with whole woods of them."

The cultivation of *almond* trees in Italy many years before the time of Pliny is conclusively proved by the foregoing extracts. Unfortunately we have no means of determining if the almond trees were cultivated in India during the first few centuries of the Christian era, during which the early medical texts of *Caraka* and *Suśruta*, which mention *Vātāma* (almond) and its properties, were composed. So far I have not traced any references to *Vātāma* in Sanskrit non-medical texts, early or late.

(7) Katābhaṭ in his *Nighaṇṭasaṁgraha* (Junagadh, 1893, pp. 542-543) quotes verses about *almond* from the *Bhāvaprakāśa*, *Madanapālanighaṇṭu*, *Nighaṇṭaratnākara*. He quotes the following verse of *Śivadatta* :—

"वातादोमिष्ठमज्जास्यान्नेत्रोपमफलस्तथा ।[2]
मञ्जरीकुसुमश्चैव दीर्घस्निग्धदलो द्रुमः ॥ इति शिवदत्तः"

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1. Smith's *Smaller Classical Dictionary* (ed. by Blakeney, London, 1900), pp. 134-135, records two persons of the name *Cato* viz.

(1) *M. Porcius Cato* or Cato Major or the Censor (born *B. C. 234* and died in *B. C. 149* at the age of 85) wrote several works, of which only the *De Re Rustica* on agriculture has come down to us.

(2) *M. Porcius Cato*, great grandson of the above Cato was *born in B. C. 95*. He was an adherent of the Stoic School and noted for his rigid morality. He put an end to his own life to avoid falling into the hands of Caesar, his enemy.

Possibly Pliny refers to *Cato Major*, the author of *De Re Rustica*.

2. My friend Diwan Bahadur K. M. Jhaveri in his letter to me of 24-6-49 makes the following remarks about the almond :—

" The information sent by you...*badam*, as we call it in *Gujarati* you say is *badam*; you also know that eyes are compared to *badam* (cf. the epithet "*netropamaphala*" and a weeping eye is called "सिगुफ् फ्शान् बादाम" in Persian. Thus it has passed from a dried nut into a poet's fancy."

Possibly this verse belongs to the *Śivakośa*, a medical lexicon by Śivadatta, known as Karpūrīya Śivadatta (Between A. D. 1625 and 1700 — see my article in the *Poona Orientalist*, Vol. VII, Parts 1 and 2, pp. 66-70).

(8) Having recorded some data about the history of the *almond* (*vātāma*) in India as revealed by Sanskrit medical texts we are in a position to consider its history outside India. In this connection the following notes from the chapter on *Almond* from "*Sino-Iranica*" by Berthold Laufer, Chicago, 1919, pp. 405-409, will be found very illuminating :—

Page 405 — *Iran* was the centre from which the *almond* (*Amygdalus Communis* or *Prunus amygdalus*) spread to *Europe, China, Tibet* and India. In India the *almond* is cultivated occasionally in Kashmir and the Panjab, where its fruits are mediocre. "*It was doubtless imported from Iran.*" The almond yields a gum, which is still exported from Persia to Bombay and thence re-exported to Europe. The almond grows spontaneously in *Afghanistan*, the *Zarafshan* valley, and in the *Chotkal* mountains as also in *Aderbeidjan, Kurdistan* and *Mesopotamia*.

— The Greeks derived the almond from Asia Minor and from Greece it was apparently introduced into Italy, The Persian kings made use of the almonds daily. The almond is mentioned in *Pahlvi* literature.

— The Arabic name of the almond is *lewze lauz*. Under this name Abu Mansur (A.D. 970) in his Persian pharmacopoeia mentions its properties. He also mentions *sweet almond* (*bādām-i-Sīrin*) and *bitter almond* (*bādām-i-tālx*).

— Bitter almonds were used as a currency in Gujarat, where they were brought from Persia in the time of Aurangzeb. There is no fear that children will amuse themselve by eating them (See Tavernier's *Travels*, Vol. I, p. 27).

Page 406 — Names for almond in different languages :—

(1) *Chinese* — *p'o-tan*, bwa-dam (derived from Iranian).
(2) *Middle Persian* — *vadam*.
(3) *New Persian* — *bādām*.
(4) *Kurd* — *badem, beīv, baif*, "almond-tree."
(5) *Tibetan* — *ba-dam*.
(6) *Uigur* and *Osmanli* — *badam*.
(7) *Sanskrit* — *vātāma* or *bādāma, derived from the Middle Persian.*

— Arab merchant *Soleiman* (*A. D. 851*) mentions *almonds* among the fruit *growing in China*.

Page 409 — The old tradition concerning the *origin of the almond in Persia* is still alive in modern Chinese authors.

— "It may be of course, that the almond has shared the fate of the date-palm, and that its cultivation is now extinct in China."

I hope the data collected in this paper about the history of the almond (*badām*) in India and outside would be useful not only to the students of the history of Indian Materia Medica but also to the students who care to investigate the history of Indian culture and its indebtedness to other countries in direct or indirect cultural contaet with India for more than two thousand years.

39. The Use of the White Mustard in Ancient and Mediaeval India*

Vaidya Bapalal G. Shah in his *Vegetable Materia Medica (Nighaṇṭu Ādarśa)* Part I, Ahmedabad, 1927, pp. 77-78, records some Sanskrit medical texts dealing with the use and properties of the *sarṣapa*[1] (mustard) plant and its products. We notice in these texts two kinds of *sarṣapa*: (1) *gaura* (white) and (2) *rakta* (red). I am concerned in this paper with the white variety and its uses as known to ancient and mediaeval India. The following table will show at a glance the references to the white mustard and its uses as vouched by medical texts, early and late:—

Text	Chronology	Use & Properties of gaura-sarṣapa
Hārīta-Saṁhitā		-Prescribed against (1) *apasmāra* (epilepsy) (2) *unmāda* (lunacy)
Dhanvantari-Nighaṇṭu	Before 800 A. D.	-Prescribed against (1) *krimi* (worms) (2) *āma* (indigestion) (3) *kaṇḍū* (itching or itch) (4) *kuṣṭha* (leprosy) (5) *śruti-śirṣa-anilārti* (certain diseases of the ear and head)
Aṣṭāṅga-Saṁgraha (sūtrasthāna, ch. 8, vv. 113, 126)	8th or 9th cent A.D.	-White mustard (*śveta sarṣapa*) used in an antidote against poison called *saumya* (v. 113) -White mustard in the decoction to be added to water for bath (v. 126)
Vaṅga-Sena	Before 1200 A. D.	-Levigated powder of *gaura-sarṣapa* prescribed against *vāta-rakta* (acute gout)
Bhāvaprakāśa	c. 1500 A. D.	-Properties of *sarṣapa* of both red and white varieties are mentioned. Both varieties are capable of curing wounds (*vraṇa*), itch (*kaṇḍū*), leprosy (*kuṣṭha*), worms in the abdomen (*koṣṭha-krimi*) and epilepsy (*graha*)[2]. The white variety is the best (*gauro varo mataḥ*). -*gaura-sarṣapa* is called *siddhārtha*.

*Dr. Johannes Nobel Comm. Volume, 1959, pp. 61–66.

1. *Brassica campestris* (Latin name) is recorded by Bapalal. White mustard (*Sinapis alba*) is mentioned in Waring's *Pharmacopoeia*, 1868, p. 23.

2. Apte in his *Sanskrit English Dictionary* mentions *graha-āmaya* = epilepsy.

It will be seen from the above table that white mustard (*gaura-sarṣapa*) has been prescribed by Indian medical texts against many diseases on account of its therapeutic properties. I have not tapped all the medical texts for evidence on this point but the evidence collected in the above table is sufficient to prove that this white variety of the mustard was a regular item in Indian materia medica from about the first century of the Christian era onwards.

Sanskrit lexicons also refer to the white mustard. The *Amarakośa* (between c. 500 and 800 A. D.) mentions *sarṣapa* and its two other names, *tantubha* and *kadambaka* (kāṇḍa II, varga 9, v. 17 — p. 353 of the N. S. P. edition, Bombay, 1905). It expressly states that *siddhārtha* is the name of white mustard. Bhānuji Dīkṣita (c. 1630 A. D.) in commenting on the above reference quotes the lexicon of Rabhasa, which gives two names of white mustard, viz. *rakṣoghna* (capable of killing demons) and *bhūtanāśana* (capable of destroying ghosts). Bhānuji also quotes the lexicon *Viśvakośa* (1111 A.D.), which refers to *sita-sarṣapa* or white mustard. This reference is found on p. 127 of the Banaras edition of the *Viśvakośa*, 1911. Even today there is a belief current in India that mustard is capable of warding off evil. Salt and mustard seeds are waved round the faces of babies and thrown away when these babies with their mothers enter a house for the first time after their birth (see my paper on this topic in the *Quarterly Journal of the Mythic Society*, vol. XXVI. pp. 313-314). In Apte's *Sanskrit-English Dictionary* (p. 73 of the 1957 edition by myself and C. G. Karve) the name *anadya* for white mustrad is recorded.

The use of *gaura-sarṣapa* or white mustard in Indian life of the 7th cent. A. D. is vouched by the following references to it in the *Kādambarī* of the eminent poet Bāṇa of King Harṣa's court (606—648 A.D.) :—

(1) *Kādambarī*, Part I, edited by P. Peterson, Bombay, 1889, p. 68-Description of the bed-chamber of Vilāsavatī, who was pregnant. She was resting upon a bed (*śayana*) upon which were scattered here and there white mustard seeds (*itasato-viprakīrṇa-gaura-sarṣapam........... śayanatalam*).

(2)—Do—, p. 68-Description of the auspicious ceremony of *āvatarana* (waving round) performed before Vilāsavatī by old ladies of the harem with many auspicious things, among which white mustard mixed with *gorocanā* (*gorocanā-miśra-gaura-sarṣapaiḥ*) was used.

(3)—Do—, p. 68-Description of the king's intense longing for the birth of a son. He visualizes a son giving delight to his heart by his "curly hair dyed tawny with (the herb-mixture called) *sarvauṣadhi*, with

a small quantity of ashes mixed with white mustard applied over his head" (*tāluni vinyasta-gaurasarṣaponmiśra-bhūtileśo*). It appears from this reference that white mustard was applied to the heads of children both for its medical properties and its supposed capacity to protect children from evil.

In the above references to the use of white mustard in Bāṇa's *Kādambarī* we find that white mustard was used not only as an auspicious thing but mainly on account of its supposed power to ward off evil and perhaps to scare away evil spirits from the bed-chamber of the pregnant lady. This use of white mustard in the 7th cent. A. D. justifies the names *rakṣoghna* and *bhūtanāśana* given by the lexicon of Rabhasa to the white mustard as already noted by me in this paper.

The *Carakasaṁhitā* (between 1st and 3rd cent. A. D.), one of the earliest medical texts, deals with the care of the new-born child. Certain performances for protecting the child and the mother are prescribed in the śārīrasthāna, chap. 8, sect. 47. White mustard (*gaura-sarṣapa*) and other corns should be spread in the *sūtikāgāra* (room in which the mother and the child are kept). In section 50 of this chapter the *Carakasaṁhitā* prescribes the use of white mustard in the water for the bath of the mother on the tenth day from delivery.

In the Indian system of weights recorded in the *Manusmṛti* (between 2nd cent. B. C. and 2nd cent. A. D.), chap. VIII, vv. 132-137 give the following weights:-

The smallest unit of weight is the grain of dust visible in the sunbeam (*trasareṇu*). 8 of these grains=1 *likṣā*. 3 *likṣā*=1 grain of black mustard (*rājasarṣapa*). 3 of these = 1 grain of white mustard (*gaura-sarṣapa*). 6 of these = 1 grain of barley (*yava*). It is the grain of barley which is the theoretical unit of weight.[1] This use of the white mustard in the Indian system of weights about two thousand years ago coupled with its uses in Indian medicine recorded above amply show that the white variety of the mustard was cultivated in India very early along with its other varieties, red or black.

On account of the curative and purificatory properties of the *gaura-sarṣapa* (white mustard) its use has been prescribed by the early texts on Hindu *dharma-śāstra*, some of which were composed prior to the Christian era:-

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1. See p. 69 of the *Political History of India* by Jean Filliozat, Engl. Translation by Philip Spratt, Calcutta, 1957.

(1) We have already noted the reference to *gaura-sarṣapa* (white mustard) as a unit of weight given in the *Manusmṛti* (chap. VIII, vv. 132-137). In chapter V, verse 120, of this work we find a reference to the purification of linen garments by the use of the white mustard (*kṣaumānām gaura-sarṣapaiḥ*). The commentaries explain this reference as follows:-

(i) Kullūkabhaṭṭa states that *gaura-sarṣapa* here is equal to pounded white mustard (*piṣṭa-śveta-sarṣapa*).

(ii) Rāghavānanda states that the linen garments are purified by washing them with white mustard powder [*piṣṭa-śveta-sarṣapa-prakṣālanāt-(śuddhiḥ)*].

(iii) Rāmacandra states that the linen garments should be washed with water mixed up with white mustard (*gaura-sarṣapa-sahitodakaiḥ*).

(2) The *Āpastamba-Dharmasūtra* (between 600 and 300 B. C.), edited by Bühler, B. S. Series, 1932, II, 8, 19, Ist sūtra, p. 81, states that a man should take his food after washing his hands and feet with water mixed up with the powder of white mustard (*gaura-sarṣapāṇām cūrṇāni kārayitvā taiḥ pāṇipādam prakṣālya mukham karṇau*). On p. 184 we find Haradatta's comments on this reference. He explains the word *prāśya* in the text to mean "swallow the remainder of the mustard powder (water)". The variant *prāsya* for *prāśya* means "should scatter away (*vikaret*)" the remainder of the mustard-powder water.

(3) The *Vasiṣṭha-Dharmaśāstra* (ed. by A. A. Führer, Bombay, 1883, p. 13), chap. III, sūtra 55, states that linen garments are purified by the use of the paste of white mustard [*gaura-sarṣapa-kalkena kṣaumajānām (śaucam)*].

(4) The *Yājñavalkya-Smṛti* (between 1st cent. B. C. and 3rd cent. A. D.), I, 276, prescribes the use of the paste of white mustard (*gaura-sarṣapa-kalka*) in the worship of God Vināyaka. This paste mixed with ghee is to be applied to the image of the god after it is bathed. Verse 283 mentions the use of the oil of mustard (*sarṣapa-taila*) on the head of the image. Verse 289 state that mustard (*sarṣapa*) should be offered to the image along with flowers etc. (see pp. 564-567 of vol. I of the *Yājñavalkya-Smṛti*, Ānandāshram Series, Poona, 1903).

(5) The *Baudhāyana-Dharmasūtra* (Kashi Sanskrit Series, Benares, 1934, p. 39), I, 8, 36 (sūtra), states that soap-nuts should be used for cleaning woolen blankets (*kutapa*); paste of white mustard (*gaura-sarṣapa-kalka*) should be used for washing linen garments.

Berthold Laufer in his *Sino-Iranica* (Chicago, 1919), pp. 380-382, makes some remarks about the mustard and its species under the title *Brassica*. The following points in these remarks are noteworthy:—

(1) There are two species of mustard, viz. (i) *Brassica* (or *Sinapis juncea*) and (ii) *Sinapis alba*.

(2) *Sinapis alba* was imported into China as late as the Tang period.

(3) *Sinapis alba* is first mentioned by Su Kun in his work (about 650 A. D.) called *Pent S'ao* as coming from Western Zum (Iranian regions).

(4) *Sinapis alba* was conveyed to China over the land-route of Central Asia.

(5) *Sinapis alba* was foreign to the Tibetans also. They call it "white turnip"(*yuṅs-kar*).

(6) *Sinapis alba* is not indigenous in India. Watt in his *Commercial Products of India* (p. 176) says that "if met with at all it occurs in gardens only within the temperate areas, or in upper India during the winter months; it is not a field crop."

(7) Abu Mansur notes five varieties of *Brassica* under the Arabic name *karnab*.

(8) The Persians spread the species of *Brassica* to Tibet, the Turks and Mongolia.

(9) *Brassica rapa* is cultivated in Persia and many parts of India during the dry season (October to March).

(10) Yi Tsin, the Buddhist pilgrim of the 7th cent. A. D., makes some comments on the Indian and Chinese varieties of *Brassica*. He says that India produces in sufficient quantity the varieties of *Brassica*, one with white and the other with black seeds. He also refers to the oil pressed from *Brassica* seeds for culinary purposes.

The foregoing notes, though scanty, are sufficient to prove the existence and use of the white mustard in ancient and mediaeval India for more than two thousand years. The statement of Watt that it is not indigenous in India needs to be examined. The suggestion of Laufer that it originated in the Iranian regions like many other cultivated plants needs also to be proved. I shall feel thankful if the readers of this paper throw more light on the history of the white mustard in India prior to c. 500 B. C. on the strength of Indian or foreign sources.

40. Some Notes on the History of Tea*

Dr. N. N. Sen Gupta published a year ago a *Note on the History of Tea* in the *Journal of the U. P. Historical Society*[1] in which he invited the attention of scholars to a reference to tea in the Tibetan biography of the great Buddhist scholar Atisa of Vikramasila, who visited Tibet upon the invitation of the Tibetan King by the *middle of the 11th century.* Dr. Sen Gupta observes[2] at the conclusion of his note that tea was unknown to Atisa but was a common beverage in Tibet. Recently Dr. Radha Kumud Mookerji has written another *Note on the History of Tea*[3] in the same Journal in which Dr. Sen Gupta's Note appeared. In this Note Dr. Mookerji points out the reference to *Tea* by I-Tsing, the Chinese pilgrim who travelled in India *between A. D. 671 and 695*[4] and observes :— "Even as far back as the Seventh Century the Indians took kindly to tea as an antidote to cold according to Ayurvedic texts[5] then current and as these texts were much earlier than I-Tsing's visit to India, the use of Tea in India is to be dated much earlier." In view of the two notes on the history of tea I would like to record in this paper some of my own notes on the subject which I had collected some time ago.

(1) There is another reference to *tea* in I-Tsing's Record not pointed out by Dr. Mookerjee. It appears on p. 90 of Takakusu's Translation as follows :—

Chapter XVII—Proper occasion for salutation — "Firstly the impurity contracted through eating and drinking. Through the eating of anything or even the swallowing of a dose of medicine one is unfit for

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**Journal of S. M. Library*, Tanjore, Vol. I, No. 2, pp. 5.8.

1. Vol. XI, Part II, p. 77—The king's representative presented Atisa with about 5 ouncesof gold, one tray full of treacle and tea prepared in Tibetan manner poured in a cup decorated with the figures of the Chinese dragon. The conversation between the King's representative and the great BuddhistScholar refers to 'tea" as "celestial drink' *'Cha'* and we are also told that "the monks of Tibet also drink it" "(See *Buddhist Text Society Journal*, Pt. 1, 1893, p. 27).

2. Ibid.

3. *Jour. U. P. His. Res. Soc.* Vol. XII, Pt. I, pp. 99—100.

4. Takakusu's Translationof *I-Tsing's Record*, p. 135. "*Tea* is also good. It is more than 20 years since I left my native country (i. e. China) and this alone as well as the ginseng decoction was the medicament to my body and I had hardly any seriousdisease."

5. I am not aware of any reference to *Tea* in the Ayurvedic texts now current.

salutation before one rinses one's mouth and washes one's hands. Even when one has drunk syrup, water, *tea* or honeywater or had ghee or moist sugar, one is equally unfit before one duly purifies oneself."

(2) In the article on Tea in the *Encyclopaedia Brittannica*[1] we are informed that the early history of tea is traditional. There is a Chinese legend that Emperor Shen-nung (2737 B. C.) discoverd the virtues of Tea. There is also a tradition in China that the knowledge of Tea travelled eastward to and in China having been *introduced in A. D. 543 by Bodhidharma, an ascetic who came from India* on a missionary expedition. "Bodhidharma vowed that he would contemplate the virtues of Buddha, through 9 unsleeping years." "The use of Tea in China in the middle of the 9th century is known from Arab sources. In Japan the cultivation of tea was established in the 9th century.

(3) In a pamphlet[2] about the *Complete Story of Tea* by Mr. William H. Ukers the contents recorded include among other things the following :—

(i) First English Translation Digest of the *Cha-ching*, the earliest work on Tea—A. D. 780.

(ii) Tea's conquest of Java and Sumatra.

(iii) The far-flung kingdom of India Tea.

(iv) Tea's triumph in Ceylon.

(v) The Glorification of Tea in Japan.

(vi) Tea in Fine Arts and Tea in literature.

(vii) A Tea Chronology of over 500 Dates.

(viii) A Tea Dictionary of over 400 Definitions.

(ix) A Tea Thesaurus.

(x) A Tea Bibilography of over 2000 Authors and Titles.

and (xi) Index of over 10,000 references.

As the above publication is not accessible to me I am unable to say what references it contains to Tea in India, earlier than those made by I-Tsing (A. D. 671—695).

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1. Fourteenth Edition, Vol. 21, p. 857. The Mahārāṣṭrīya Jñānakoṣa by S. V. Ketkar (Vol. XIII—440) contains an article on Tea but it contains no historical information except a reference to the effect that a Chinese Emperor (A. D. 569—605) was advised by a Buddhist *bhikshus* to use *Tea* as medicine against headache. I have no means of verifying the statement.

2. Published by the Tea and Coffee Trade Journal Co. 79 Wall Street, New York, U. S. A. The price of the 2 Vols. of *Story of Tea* is £ 5—5—0 or 25 dollars net. Mr. Ukers has also published a *Story of Coffee*.

(4) To corroborate the Tibetan reference to Tea in the middle of the 11th Century pointed out by Dr. Sen Gupta I have found a reference to Tea in the *Life and Hymns of Milarepa*,[1] which is as follows :—

"Enjoying wine and *tea* in merriment,
is drinking juice of aconite
To drink it is to drown
Salvation's Vital Cord"

Jetsun Milarepa was the greatest of the Tibetan Saints. He belonged to Kargyutpa Apostolic succession founded by Tilopa in 950 A.D. Milarepa was the fourth in this succession and lived between A. D. 1050 and 1135.[2]

(5) Though I-Tsing mentions Tea in India in the 2nd half of the 7th century we don't find its existence in Bengal about A. D. 1400. In the *Mahuan's account of the kingdomof Bengala*[3] translated from the Chinese by Mr. Geo. Philips he makes the following reference to the *absence* of *tea* in Bengal. —

"Not having any *tea* they offer their guests the betel-nut in its place."

Mahuan was an interpreter attached to the suite of Cheng Ho who led an expedition to the Indian coast with 62 ships and 30,000 soldiers. This event took place in A. D. 1405-6.

(6) For later references to *Tea* and its introduction into England and other countries of Western Europe reference is invited to *Hobson-Jobson*[4] where we are told that the Tea-shrub is mentioned in the ancient dictionary *Rhya* which is believed to date long before the Christian era and a commentator on this work of the 4th century A.D. describes it

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1. Vide p. 576 of *Buddhist Bible* by Dwight Goddard (2nd Edn. 1938) *page 588* — "*Tea* and Chhang" ; *page 589* — "lips dipped in *Tea* and Chhang."

2. Ibid, p. 674. See also p. 57 of *Tibetan Yoga* by Evans-Wentz, Oxford Uni. Press, 1935. On p. 591 of the *Buddhist Bible* the following chorus of a Song in the *Life and Hymns of Milarepa* contains a reference to Chinese Tea :—

'The splendid kitchen, well arranged, with goodly stock of *Chinese Tea*, for three ;
The busy hands of many youthful novices for four ;
These four, if needed, thine, elder brother could procure.'

3. Vide p. 531 of JRAS, 1895. Though tea was not found in Bengal by Mahuan he refers to numerous articles of food and drink, some of which may be noted here :— Rice, wheat, sesamum pulse, millet, ginger, mustard, onions, brinjals, wines from cocoanut, rice, toddy and kadjang, jack-fruit, mangoes, pomegranates, sugarcane, granulated sugar, white sugar preserved fruits, plantain. He also refers to "white paper from the bark of a tree which is smooth and glossy like a deer-skin."

4. By Yule and Burnell, London, 1903, pp. 905 ff.

adding "From the leaves can be made by boiling a hot beverage." The first distinct mention of tea-cultivation in Chinese history is a record of the Tang Dynasty (A. D. 793) which refers to duty on tea in that year. The Arab traders of the next century also refer to tea as subject to a royal impost. The dates of references to Tea given in the *Hobson-Jabson* are as follows :—A. D. 851, c. 1545, c. 1560, 1565, 1588, 1598, 1611, 1616, 1626, 1631, 1638, 1658, 1660, 1667, 1672, 1677, 1688, 1690, 1726, 1789, 1844. Baldaeus (A. D. 1672) devotes five columns in his work to Tea and its use and abuse in India.

I believe, the notes[1] on tea and its history recorded above would be found useful for the student of this beverage which has now caught both the hemispheres in its firm grip, too tight to be relaxed by the advice of moralists and economists.

I have to add the following reference to tea found by me after this paper was drafted :—

1. In A. D. 1009 Kio-Kie, a S'ramana of Central India went to China. He took with him some relics, an impression of the Vajrasana and a few leaves of the sacred tree. When he returned to India he received by an imperial decree a Kasaya-cloth to be offered to the Vajrasana of Mahabodhi. He also received silver, Tea and fruits for his route (Vide p. 323 of *Indian Literature in China* by P. K. Mukherji, Calcutta, 1931).

On p. 392 of Rajawade's *Sources of Maratha History, Khaṇḍa VI*, there is a reference to *tea-cups* ("चाहा प्यावयासि प्याले") which are mentioned as "not quickly getting hot" ("लवकर न तापेत ऐसे"). Possibly porcelain tea cups are meant. This reference is dated S'aka 1676 = A. D. 1754.

In letter No. 88 dated *16th June 1762 ?* (*Peshwa Daftar Selection No. 32* — Private Life of Later Peshwas — P. 49) there is a reference to *tea-pot* ("चहादाणी"). The writer Naro Appaji states that the tea-pot or kettle has been sent to the fort of Simhagad. It will be ordered back and then sent to the Purandar fort.

41. The History of the Akṣayavaṭa (Undecaying Banyan Tree) at Prayāga and Gayā as revealed by some Sanskrit texts — Between the First Century A.D. and 1900*

When the Silver Jubilee of the B. O. R. Institute was celebrated on the 4th and 5th of January 1943 the late Prof. V. K. Rajawade, the oldest among the founders of the Institute, was requested to plant a small sapling of the banyan tree (*akṣayya vaṭa*) on the premises of the Institute as a land mark to commemorate the successful growth of the Institute during the preceding twenty-five years and as a visible symbol of its future expanding academic activities in the years to come. Prof. Rajawade agreed to this request made by the Silver Jubilee Celebration Committee and the *akṣayya vaṭa* sapling (about 2½ ft. high) was planted at his hands in a special pit at the western side of the main building of the Institute on 4th January 1943 at sunrise (about 7-30 a.m.) before a distinguished gathering of the delegates from all parts of India as also local visitors to the function.[1] Rev. H. Heras, the celebrated Indologist of the St. Xavier's College, Bombay, was sitting by my side when the *vaṭa* plant was planted. He had read some of my studies in the history of Indian plants and consequently put me the question : "Have you studied the history of the *vaṭa* tree and especially that of the *Akṣayya Vaṭa* (undecaying banyan tree) from Indian or foreign sources ?" I told him that I would some day record a few notes on the history of the *vaṭa* tree in general and on the *akṣayya vaṭa* in particular as suggested by him. Accordingly I began to collect some evidence on this topic and the present note is a part of the evidence collected so far. Unfortunately my friend Rev. Heras is no more to see this note in print ! However, I record here my grateful and respectful thanks to him for his suggestion which occasioned my present inquiry.

The *Vaṭa* plant which Prof. Rajawade planted on the premises of the Institute 14 yearsago hasgrown vigorously and can be seen prominently from the main building of the Institute with its dark green umbrageous expanse.

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* *Annals* (B. O. R. Institute Vol. XXXVIII, pp. 82-92.

1. I have published a detailed account of this function in my editorial in the *New Indian Antiquary*, Vol. V, pp. 235-240.

The Institute will some day build a circular stone pedestal round it with an inscription : "*The Akṣayya Vaṭa planted by Prof. V. K. Rajawade on 4-1-1943 at the time of the Silver Jubilee of the B. O. R. Institute.*" After the Silver Jubilee was over I inquired of my friend the late Dr. Birbal Sahani, our great Botanist of the Lucknow University, at whose instance I began my studies in the history of Indian Plants, if he can point out any old *Vaṭa* tree in India with authentic record of its plantation and growth. He replied that the only *Vaṭa* tree of this type is that now in the Botanical Garden at Calcutta.

The Marāthi *Śabdakośa* by Y. R. Date and C. G. Karve, Poona, 1932, Vol. 1, p. 195 observes as follows about *akṣayavaṭa* :—

"अक्षयवट—The *Vaṭa* tree on the confluence of the rivers Gaṅgā and Yamunā at Prayāga[1] (Allahabad). It is said that this tree is very ancient and does not die. Such trees are pointed out at other holy places."

The *Mahābhārata* mentions Gayā and the *akṣayavaṭa* there as "famous in the three worlds" (*triṣu lokeṣu viśrutaḥ*). This reference clearly proves that at the time when this reference was made this banyan tree with all its religious significance was an established landmark revered by Hindu pilgrims visiting Gayā. We can also presume that some hundreds of years must have elapsed prior to this reference and posterior to the first planting of this tree at Gayā. No authentic account of the circumstances under which the tree, with its subsequent history of no less than two thousand years, was planted and the person or a body of persons who first conceived the idea of planting it and executed his or their plan

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1. See p. 921 of *Indian Companion* by G. H. Khandekar, Poona, 1894. Allahabad (Prayāg)is situated on the left bank of the Jamu ā, on the wedge of landformed by its confluence with the Ganges and is distant 390 miles fromDelhi...... (It) isa very ancient city...... In the Mahābbārata the country round Allahabad bears the name of *Varaṇāvata*, and was the scene of exile undergone by the famous Pāṇḍava brethren. The city or ancient Prayāga was built by the Hindus, and is held sacred by them, about 3 miles fromthe confluence of the Jamunā and Ganges rivers (a thirdriver, the Sarasvati runs underground meetinghereboth the rivers and hence it is *Triveṇī*, which can be seen with advantage from thepalace in the fort. The waters of both rivers are easily distinguished by the difference in colour. Agreat religious fair known as the Magh Mela is held in December and January on the plain near the fort...... The present fort and city were founded by Akbar in 1575 A. D.; butthe Aryans possessed a holy ancient city here called *Prayaga*......Inthe fort near Aśoka's pillar steps lead down to an underground Hindu temple. This building dedicated toŚiva, passes as the place where the river Sarasvati unites with the Ganges and theJamunā...... The stump of a *banyan tree* said to be 15 centuries old and still alive is here the object of worship, The temple also contains the image of a famous saint, named Makunda,

in this connection, has come down to us. Was it in a fit of religious fervour that this tree was planted by a Hindu devotee or was it planted by any representatives of a particular Hindu religious sect to commemorate any important event in their history ? It is difficult to answer these questions without collecting all evidence from literary and other sources pertaining to the *akṣayavaṭa*.

The verses referring to Gayā and the *akṣayavaṭa* are found in the *Mahābhārata* in the *Āraṇyakaparvan* (*tīrthayātrāparvan*) edited by Dr. V. S Sukthankar for the B.O.R. Institute (see p. 292-382, verses 71-73). These verses read as follows :—

" ततो गयां समासाद्य ब्रह्मचारी जितेन्द्रियः ।
अश्वमेधमवाप्नोति गमनादेव भारत ॥ ७१ ॥
तत्राक्षयवटो नाम त्रिषु लोकेषु विश्रुतः ।
पितॄणां तत्र वै दत्तमक्षयं भवति प्रभो ॥ ७२ ॥
महानद्यामुपस्पृश्य तर्पयेत्पितृदेवताः ।
अक्षयान्प्राप्नुयाल्लोकान्कुलं चैव समुद्धरेत् ॥ ७३ ॥"

There is a reference to अक्षयवट in the *Āraṇyaka* or *Vanaparvan* (Chap. 95, verses 13-15) in the following extract :—

" तत्र ते पाण्डवा वीराश्चातुर्मास्यैस्तदेजिरे ॥
ऋषियज्ञेन महता यत्राक्षयवटो महान् ।
अक्षये देवयजने अक्षयं यत्र वै फलम् ॥
ये तु तत्रोपवासास्तु चक्रुर्निश्चितमानसाः ॥"

Kṣemendra, the great Sanskrit poet of Kashmir (c. A. D. 1020-1080) also refers to the *akṣayavaṭa* at Gayā in his *Bhāratamañjarī*, an abridgment of the *Mahābhārata*. This reference is found in the following verses of the *Āraṇyakaparvan* of the *Bhāratamañjarī* edited by V. R. Nerurkar, Bombay, 1919, p. 57 (पुलस्त्यतीर्थयात्रा) :—

" गंगोद्भवं त्रिनयनप्रियां वाराणसी पुरीम् ॥६५४ ॥
तां चाक्षय्यवटोपेतां पितृसंतारणी गयाम् ॥ ६५५ ॥ "

My friend Shri J. S. Pade of the Oriental Institute, Baroda, in his letter to me of 14-3-1957 has kindly pointed out the following reference to *Akṣayavaṭa* in the *Anuśāsanaparvan* of the *Mahābhārata* :—

"एष्टव्या बहवः पुत्राः यद्येकोऽपि गयां व्रजेत् ।
यत्रासौ प्रथितो लोकेष्वक्षय्यकरणो वटः ॥ १४ ॥"

(See p. 198 of *Mahābhārata*, XIII, 88, 14 Chitrashala Press, Poona). My friend Prof. V. M. Bedekar has sent me the following remarks on the above reference :—

"This reference occurs in the 88th chapter of the *Anuśāsanaparvan*. Therein Yudhiṣṭhira asks Bhīṣma which among the libations offered to the Manes are inexhaustible (अक्षय) or endure for a long time or for eternity.

Bhīṣma enumerates in reply various kinds of non-vegetarian food to be offered in memory of the Manes, which are calculated to secure the satisfaction of the Manes for a period ranging from two months to eternity. While referring to a belief that the offering of a छाग (goat) to the Manes leads to their satisfaction for all time, Bhīṣma quotes in support a few *gathas*, which the revered Sanatkumāra had recited to him in a similar connection. In one of these *gathas* (verse 14) the "अक्षय्यकरणो वटः" is referred to. This *gatha* seems to imply that *Gaya*, the sacred place, is specially auspicious and therefore suited for offering libations to Manes in view of its having been the venue of the "unaging Banyan tree" (अक्षय्यकरणो वटः). "A reference to the Divine Child resting on the extended branch of a huge Banyan tree in the midst of the Great Deluge occurs in the 186th Chapter of the *Araṇyakaparvan* of the *Mahābhārata*.

The great sage Mārkaṇḍeya is narrating to Yudhiṣṭhira the story of the Dissolution of the Universe as he had once witnessed it. The whole world was overwhelmed with floods and the whole creation was submerged. In that predicament Mārkaṇḍeya found himself alone walking on the waters of the ocean. Extremely distressed at this awful destruction and feeling lonely and forlorn he kept on swimming to find some refuge (*śaraṇam*) where he could rest. Then all of a sudden he espied in the midst of that all-encompassing deluge a huge न्यग्रोध tree and there resting comfortably on a gorgeous couch on its extended branch a little child. The pertinent lines run as follows :—

(III. 186), pp. 644-645 of the B. O. R. I. Critical Edition of the *Araṇyakaparvan* :—

"ततः कदाचित् पश्यामि तस्मिन् सलिलसंप्लवे ।
न्यग्रोधं सुमहान्तं वै विशालं पृथिवीपते ॥ ८१ ॥
शाखायां तस्य वृक्षस्य विस्तीर्णायां नराधिप ।
पर्यंके पृथिवीपाल दिव्यास्तरणसंस्तृते ॥ ८२ ॥
उपविष्टं महाराज पूर्णेन्दुसदृशाननम् ।
फुल्लपद्मविशालाक्षं बालं पश्यामि भारत ॥ ८३ ॥"

While Mārkaṇḍeya was looking on at this wonderful spectacle in amazement, the child called unto him and gave him shelter inside its stomach. While inside, Mārkaṇḍeya saw before him, contained in the boundless stomach of the child a whole world of kingdoms, rivers, mountains, gods, demons. He roamed in amazement through the boundless interior of the child for hundreds of years. Bewildered he prayed to that God with all his soul. After a while the child opened its mouth and out came Mārkaṇḍeya to see again the same wonderful sight of the child resting on the branch of the *Nyagrodha* :—

" ततस्तस्यैव शाखायां न्यग्रोधस्य विशांपते ।
आस्ते मनुजशार्दूल कृत्स्नमादाय वै जगत् ॥ "

(III, 186. 114)

(See p. 648 of *Ādiparvan*—B. O. R. I. edition).

Mārkaṇḍeya soon overcame his bewilderment and took the tender rosy feet of the child on his head and made his obeisance.

While Mārkaṇḍeya was inside the stomach of the Divine Child, he saw there inside, as already mentioned, the whole world with its kingdoms, citiesand rivers. The relevant lines are :—

" सराष्ट्रनगराकीर्णां कृत्स्नां पश्यामि मेदिनीम् ।
गंगां शतद्रुं सीतां च यमुनामथ कौशिकीम् ।
चर्मण्वती वेत्रवती चन्द्रभागां सरस्वतीम् ॥"

(III. 186. 92-93)

The first river that is mentioned as meeting the eyes of Mārkaṇḍeya is the *Gaṅgā*. This may perhaps be significant in view of the fact that it is the great *Nyagrodha* with which the Divine Child is shown associated and that one such hoary *Akṣaya Vaṭa* is situated on the bank of the *Gaṅgā* at the confluence at Prayāga, though of course Mārkaṇḍeya (or the author of the *Mārkaṇḍeya-Samāsyā*) does not explicitly mention it as the *Akṣaya Vaṭa* or *Nyagrodha*."

My friend, Dr. M. M. Patkar, Secretary of Sanskrit Dictionary Department of the Deccan College, Poona, has kindly replied to my query about *akṣayavaṭa* on 4-1-1957 as follows :—

"I give below a reference to the sacred fig tree at Allahabad from the *Śabdaratnasamanvayakośa* of Shahaji (G. O. Series, Baroda, 1932), p. 226. It reads as follows :—

" श्यामः प्रयागस्थवटे "

This shows that the name of the tree was श्याम (*śyāma*). This name also occurs in the *Raghuvaṁśa* (XIII, 53) cf.

" त्वया पुरस्तादुपयाचितो यः सोऽयं वटः श्याम इति प्रतीतः ।
राशिर्मणीनामिव गारुडानां सपद्मरागः फलितो विभाति ॥ ५३ ॥ "

These are valuable references which open a further field of inquiry. The name of the *akṣayavaṭa* at Prayāga was *Śyāma* as clearly stated by poet Kālidāsa in the verse quoted above. This name has, therefore, an antiquity of more than 1500 years. The tree itself and its history as vouched by the *Mahābhārata* and by Kālidāsa is really very enchanting and it should be our endeavour to investigate it in greater details. For this purpose we murt examine the comments on श्यामवट made by the commentators of the *Raghuvaṁśa*. G. R. Nandargikar in his edition of

the *Raghuvaṁśa*, Poona, 1897, p. 417, gives us the English Translation of the above verse (XIII, 53) as follows :—

"This is the same Banyan tree known by the name of *Śyāma*, whose help was solicited by you on some former occasion. Covered with fruits it appears like a heap of emeralds mixed with rubies."

The commentator Mallinātha (c. A. D. 1430) comments on this verse as follows :—

" त्वयेति । त्वया यः पुरस्तात्पूर्वमुपयाचितः प्रार्थितः ॥

तथा च रामायणे—

' न्यग्रोधं तमुपस्थाय वैदेही वाक्यमब्रवीत् ।
नमस्तेऽस्तु महावृक्ष पालयेन्मे व्रतं पतिः ॥ ' इति

श्याम इति प्रतीतः स वटोऽयं फलितः सन् । सपद्मरागो गारुडानां हरिन्मणीनां मरकतानां । राशिरिव । विभाति ॥ "

The reference to श्याम न्यग्रोध or वट given by Mallinātha occurs in the *Rāmāyaṇa, Ayodhyākāṇḍa* 2, Sarga 55, verses 23-24, which read as follows :—

" तेषु ते प्लवमुत्सृज्य प्रस्थाय यमुनावनात् ।
श्यामं न्यग्रोधमासेदुः शीतलं हरितच्छदम् ॥
न्यग्रोधं समुपागम्य वैदेही चाभ्यवन्दत ।
नमस्तेऽस्तु महावृक्ष पारयेन्मे पतिव्रतम् ॥ "

Verses 6-7 of Sarga 55 of the *Ayodhyākāṇḍa* also refer to श्याम न्यग्रोध as follows :—

" ततो न्यग्रोधमासाद्य महान्तं हरितच्छदम् ।
परीतं बहुभिर्वृक्षैः श्यामं सिद्धोपसेवितम् ॥
तस्मिन्सीताञ्जलिं कृत्वा प्रयुञ्जीताशिषां क्रियाम् ।
समासाद्य च तं वृक्षं वसेद् वातिक्रमेत वा ॥ "

Dr. Patkar has drawn my attention to the following remarks of Dr. P. V. Kane on the *Akṣayavaṭa* at Prayag in his *History of Dharmaśāstra* (Vol. IV, p. 614) :—

"There are several sub-tīrthas that fall under Prayāga. The most important of them is the famous *Vaṭa* (Banyan tree). The *Agnipurāṇa* (111.13) states "if a man dies at the foot of the *Vaṭa* and in the *Saṅgama* he goes to the city of Viṣṇu'. Special reference is made to abandoning one's life at the foot of the *Vaṭa*. The *Kūrmapurāṇa*[1] says : ' He, who

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1. Dr. Kane's footnote No. 1396 on *Kūrmapurāṇa* reads as follows :—
" वटमूलं समाश्रित्य यस्तु प्राणान्परित्यजेत् ।
स्वर्गलोकानतिक्रम्य रुद्रलोकं स गच्छति ॥ "
—कूर्म. 1. 37.8-9 quoted by तीर्थचि. The same is पद्मपुराण, आदिखण्ड 43.11 (reads " सर्वलोकान् ")

abandons life at the foot of the *Vaṭa*, passes beyond heavenly worlds and goes to the world of Rudra."

The *Amarakośa* (N. S. Press, Bombay, 1905) contains the word "*Śyāma*" [p. 69–*Kāṇḍa* I, *varga* 5 (*dhīvarga*)] mentioned along with words expressive of colours viz. कृष्ण, नील, असित, काल, श्यामल, मेचक, पीत, गौर, हरिताभ, etc. (verse 14). It does not mention श्याम in the sense of the name of प्रयागवट. Bhānuji Dikṣita (c. A.D. 1630) explains the word श्याम and quotes the lexicon हैम as follows :—

" श्यामोऽम्बुदे सिते। हरिते प्रयागवटे कोकिले वृद्धदारके। etc. "
इति हैमः "

This reference to प्रयागवट by Hemacandra (c.A.D 1088-1172) needs to be traced in the extant lexicon, the authorship of which is ascribed to him.

The *Amarakośa* mentions the word "*Śyāma*" again in *Kāṇḍa* III, *varga* 3 (*nānārthavarga*) p. 487. Bhānuji explains it and quotes the lexicon *Medinī* (c.A.D. 1300) as follows :—

"श्यामो वटे प्रयागस्य वारिदे वृद्धदारके। etc." (इतिमेदिनी)

Though Bhānuji does not mention मेदिनी in giving this quotation the editor has traced the quotation in the *Medinī*lexicon. I have also traced it in the edition of *Medinī* by J. Vidyāsāgara, Calcutta, 1872, p. 148, where it occurs exactly as quoted by Bhānuji.

The poet Bhavabhūti (8th cent. A.D.) also refers to श्यामवट on the banks of the river Kālindī (Yamunā) in his drama *Uttararāmacarita* as follows :— Lakṣmaṇa says to Rāma :—

"अयमसौ भरद्वाजावेदितश्चित्रकूटयायिनि वर्त्मनि वनस्पतिः कालिन्दीतटे वटः श्यामो नाम।"

(Act I, p. 16 of P. V. Kane's edition of the *Uttararāmacarita*, 1929). The English translation of the above lines as given on p. 125 by Kane reads as follows :—

"*Lakṣmaṇa* :—Here is the banian tree, Śyāma by name on the bank of the Kālindī, by the side of the road leading to Citrakūṭa, pointed out to us by Bharadvāja."[1]

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1. P. V. Kane makes thefollowingremarks on p. 26 of his *Notes* to the edition of the *Uttarrāmacarita* :—

"*In* अयोध्याकाण्ड (of रामायण) सर्ग 54 we see that राम met भरद्वाज near the confluence of the Ganges and the Jamuna. दशक्रोश इतस्तात गिरिर्यस्मिन्निवत्स्यसि। 28......चित्रकूट इति ख्यातो गन्धमादनसंनिभः॥" 29. In Sarga 55 we read—

ततः प्रचक्रमे वक्तुं वचनं स महामुनिः।
भरद्वाजो महातेजा रामं सत्यपराक्रमम्॥ ३॥

The poet Murāri (c.A.D. 1050-1135) in his drama *Anargha-Rāghava* (Act VII, verse 129) refers to श्यामवट as follows:—

"श्यामो नाम वटः सोऽयम् एतस्माद् मुतकर्मणः ।
छायामप्यधिवस्तव्यैः परं ज्योतिर्निषिध्यते ॥"

In the *Gayāmāhātmya* of the *Vāyupurāṇa* (ed. in Ānandāśrama Sanskrit Series, Poona, 1905, pp. 426-453) we get the following references to *Akṣayavaṭa* :—

Page 437— "वटो वटेश्वरः" near भस्मकूटाद्रि
— "गृध्रवट" near गृध्रकूट

Page 438— "वटो वटेश्वरः" near सीताद्रि
— "गृध्र वट" near गृध्रकूट

Page 440— "अक्षयवट" mentioned along with भस्मकूट, गृध्रकूट, फल्गुतीर्थ etc.

Page 447— "अश्वत्थराज" or बोधिद्रुम" or "महाबोधितरु"

at Gayā is mentioned. The mango[1] tree was also considered sacred. Verse 37 on p. 447 refers to the mango tree and the *Śrāddha* performed at its foot as follows :

"एको मुनिः कुम्भकुशाग्रहस्त
आम्रस्य मूले सलिलं ददानः ।
(v. l. आम्राश्च सिक्ताः) आम्राश्च सिक्ताः पितरश्च तृप्ता
एका क्रिया द्व्यर्थकरी प्रसिद्धा ॥ ३७ ॥"

Page 449 —The following verses refer to the *Akṣayavaṭa* at Gayā and the *Śrāddha* performed in its vicinity.

गङ्गायमुनयोः सन्धिमादाय मनुजर्षभ ।
कालिन्दीमनुगच्छेतां नदी पश्चान्मुखाश्रिताम् ॥ ४ ॥
अथासाद्य तु कालिन्दीं प्रतिस्रोतः...समागताम् ।
...तत्र यूयं प्लवं कृत्वा तरतांशुमती नदीम् ॥ ५ ॥
ततो न्यग्रोधमासाद्य महान्तं हरितच्छदम् ॥ ६ ॥
...समासाद्य च तं वृक्षं वसेद्वातिक्रमेत वा ।
क्रोशमात्रं ततो गत्वा नीलं प्रेक्ष्य च काननम् ।
...स पन्थाश्चित्रकूटस्य गतस्य बहुशो मया ॥ ८ ॥

Thus we see that चित्रकूट was a hill about 10 कोशS from the confluence of the Ganges and the Jamunā to the west."

1. Dealing with the antiquity of the mango tree in India Shri H. P. Paranjpye quotes the following extract from the *Bṛhadāraṇyakopaniṣad*, Adhyāya 4, Brāhmaṇa 3) :—

"स यथाऽयमणिमानं......तद्यथाऽऽम्रं वोदुंबरं वा पिप्पलं वा बन्धनात् प्रमुच्यते एवमेवायं पुरुषः etc." ॥ ३६ ॥ (See p. 58 of "फळझाडांचा बाग, Poona, 1930). आम्र (Mangifera), उदुंबर and पिप्पल treesare referred to in this extract.

"कृते श्राद्धेऽक्षयवटे अन्नेनैव प्रयत्नतः ।
पितॄन्नयेद् ब्रह्मलोकमक्षय्यं तु सनातनम् ॥ ७९ ॥
वटवृक्षसमीपे तु शाकेनाप्युदकेन वा ।
एकस्मिन् भोजिते विप्रे कोटिर्भवति भोजिताः ॥ ८० ॥
देयं दानं षोडशाख्यं गयातीर्थपुरोधसे ।
वस्त्रं गन्धादिभिः पुत्रैः सम्यक्संपूज्य यत्नतः ॥ ८१ ॥
एकार्णवे वटस्याग्रे यः शेते योगनिद्रया ।
बालरूपधरस्तस्मै नमस्ते योगशायिने ॥ ८२ ॥

संसारवृक्षच्छायाशेषपापहराय च ।
अक्षयवटराजे च नमोऽक्षयवटाय वै ॥७३॥"

The reference to the Divine Child (बालरूपधरः) resting on the extended branch of a Banyan tree in the midst of the ocean as found in verse 82 of the above extract from the *Gayamahatmya* is also found in the *Araṇyakaparvan* of the *Mahabharata* as we have seen above.

Dr. A. P. Karmarkar, Director, Purāṇic Research Institute, Belgaum, has kindly supplied to me the following references to *Akṣayavaṭa* from the *Purāṇas* :—

(1) *Vayupurāṇa—Chap.* 105, 45 —
"तथाऽक्षयवटं गत्वा पितॄन्संतोषयिष्यति"
—also *Chap.* 109, 16
—*Chap.* 111, 79—82

(2) *Matsyapurāṇa —Chap.* 104, 10 —
"तं वटं रक्षति सदा शूलपाणिर्महेश्वरः"
—*Chap.* 106, 11—
"वटमूलं समासाद्य यस्तु प्राणान्विमुञ्चति ।
सर्वलोकानतिक्रम्य रुद्रलोकं स गच्छति ॥"

(3) *Padmapurāṇa* I —38.2-3 (गयामाहात्म्य)
—*Ādikaṇḍa*. 43. 11 (old edition).

(4) *Agnipurāṇa —Chap.* 115, 70 (आवन्त्यक्षेत्रमाहात्म्य)
— *Chap.* 111. 13 (प्रयाग)

(5) *Skandapurāṇa —Chap.* 58, 5 and *Chap.* 59 (गयाक्षेत्र)

(6) *Nāradiyapurāṇa —Uttarakhaṇḍa* (प्रयागमाहात्म्य)
—*Chap.* 63, 141 (वटमूल)—
"निर्गच्छन्ति जगत्सर्वं वटमूले स दृश्यते ।
हरिश्च भगवांस्तत्र प्रजापतिपुरस्कृतः ॥"

(7) *Brahmapurāṇa —Chap.* 161, 66—67 (under *Godāvarī Mahatmya*)—to the north of Vindhya.

(8) *Brahmavaivartapurāṇa* —(on Narmadā) III—
Chap. 33, 32-33 (where Pulastya performed penance).

(9) *Kūrmapurāṇa* I. 37. 8–9 —

(He who abandons his life at the foot of the *Vaṭa*, passes beyond heavenly worlds and goes to the world of Rudra) — See also *Tīrthacintāmaṇi*, p. 48 — where the above verse from *Kūrma* is repeated.

The references to the *Akṣayavaṭa* in Sanskrit sources recorded above reveal the history of this *Vaṭa* for about 2000 years. This history is further vouched by foreign travellers to India, Prākṛta texts and some inscriptions as I shall show in papers to be published hereafter. I now close this paper with my best thanks to all those scholar friends who have enriched my present study by supplying references to the *Akṣayavaṭa* known to them. I have further to request the readers of this paper to report to me whatever data pertaining to this subject come to their notice from any sources, especially of the datable type.

42. Studies in the History of Indian Plants — History of Fenugreek and Alfalfa (Lucerne) in India and other countries

(between c. B C. 700 and A.D. 1800)*

A. K. Nairne in his *Flowering Plants of Western India*, Bombay, 1894, (pp. 77-78) describes the following plants :—

(1) *Methī*—(*Trigonella Fœnugræcum*) commonly cultivated for *bajī* as it is also in South Europe. It was adopted as fodder by the Romans from the Greeks ; hence the specific name.

(2) *Lucerne*—(*Medicago Sativa*) Purple medick not wild in India any more than in England, but widely cultivated. According to Hehn this plant *medicago* came originally from Media and Columella, the Spanish writer on agriculture in the reign of Emperor Claudius (*A. D. 41*) praises it as a horse-fodder. According to *Shorter Oxford English Dictionary* (p. 689) *Fenugreek* (*Methī*) was called as *Greek hay* by the Romans. The seeds of *Fenugreek* are used by farriers. B. Laufer in his *Sino-Iranica* (Chicago, 1919) devotes two pages (446-447) to the History of *Fenugreek* and about eleven pages (208-219) to the history of *Alfalfa*, the Arabic name of *Medicago Sativa* or Lucerne. I note below some points from Laufer's account of these two plants :—

Fenugreek (Methī) —

(1) According to Stuart (*Chinese Materia Medica*, p. 442) this plant was introduced into Southern China from some foreign country.

(2) This plant is first mentioned in the *Pen ts'ao* (A. D. 1056-1064).

(3) Abu Mansur in his Persian pharmacopoeia mentions the properties of this plant under the name *hulbat*.

(4) The Persian name of the plant viz. *Šamlīz* current in Shiraz appears also in India as *Šamli*.

(5) The plant occurs wild in Kashmir, the Panjab, and in the upper Gangetic plain. It is cultivated in many parts of India.

(6) The Sanskrit term for the plant is मेथी, मेथिका or मेथिनी. It is

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* *Annals* (B. O. R. Institute), Vol. XXXIII, pp. 171-181.

mentioned as a condiment in the Tale of King Vikramāditya (see p. 67 of Weber, *Abh. Berl. Akad.*, 1877).

(7) The plant is mentioned by *Theophrastus* the father of Botany in his *History of Plants* (IV, iv 10 etc) and by *Dioscorides* (II, 124) and also by *Pliny* (XXIV, 120).

(8) According to A. de Candolle (p. 112) this plant grows wild in the deserts of Mesopotamia, Persia and Asia Minor.

Lucerne (Alfalfa)—

(1) Aristophanes (B. C. 424) refers to this plant as follows in his "The Knights" (V, 606) :—

"The horses ate the Crabs of Corinth as a substitute for the *Medic.*"

(2) The term "*Mēdikē*" is derived from *Media* as stated by *Strabo* in his description of *Media*. In Greece it was the *chief food for horses.* According to *Pliny* "*Medica*" was first introduced from Media in consequence of the Persian wars under King Darius. *Dioscorides* mentions this plant as *forage for cattle.*

(3) In Italy the plant was disseminated from the *middle of the 2nd cent. B.C. to the middle of the 1st cent. A.D.* During this period it was also propagated in China.

(4) According to Assyriologists the Iranian name of this plant viz. *aspasti* or *aspastu* is mentioned in a Babylonian text of *c. 700 B. C.* Possibly this favourite fodder followed the horse at the time of its introduction from Iran into Mesopotamia.

(5) The Greeks allude solely to Media from which the plant was introduced into Greece and not to India. "*The cultivation of the plant is not ancient in India but is of recent date, and hardly plays any role in Indian agriculture and economy,*" says Laufer.

(6) In ancient Iran *alfalfa* was a highly important horse fodder. Words for this plant recorded by Laufer are :—

Pahlavi — aspast, aspist.

New Persian — aspust, uspust, aspist, ispist, isfist.

Pustu or Afghan — Spastu, Špešta.

Avestan or Old Iranian — aspo-asti (from the root *ad* to eat).

Syriac — aspesta, pespesta.

(7) Khosrau I (A. D. 531-578) levied a heavy tax on it.

(8) Abu Mansur mentions *alfalfa* in his work on pharmacology.

(9) The Arabs derived the word *isfist* from the Persians and then Arabicized it as *fisfisa*.

(10) According to Chinese tradition *alfalfa* was introduced into China from Iranian quarters in 2nd century B. C.

(11) King Darius makes a proud mention of Persian horses in the Persepolis inscription. The Chinese Emperor Wu (140-87 B. C.) sent regular missions to Iranian countries with the motive of importing the Persian horses.

(12) General *Can Kien* imported the seeds of *alfalfa* from Fergana and presented them to the Chinese Emperor *in* 126 *B. C.* The Emperor cultivated *alfalfa* near his palaces. Later the plant was rapidly cultivated throughout northern China. This plant is mentioned by *Yen Ši-Ku* (A. D. 579-645), *T'ao Hun-Kin* (A. D. 451-536) and other Chinese writers.

(13) The Chinese General *Čan K'ien* noted the words *mu-su* (alfalfa) and *pu-tao* (grape) and transmitted them to China along with these plants. These words were Ferganian i. e. Iranian.

(14) The Chinese of the Han period discovered *mu-su* (alfalfa) in Ki-pin (*Kashmir*). In Kashmir as well as Afghanistan and Baluchistan it is probably spontaneous.

(15) *Mu-su* (alfalfa) gardens are mentioned by Emperor *Wu* (A. D. 265-290). Post-horses of the T'ang dynasty were fed on *alfalfa*.

(16) *Alfalfa* was used as an article of *human food* during the time of Emperor *Yuan Tsun* (A. D. 713-755).

(17) Chinese works of the *6th century A. D.* refer to the cultivation of *mu-su* (alfalfa) in different parts of China.

(18) *Kou Tsun-si* (A. D. 1116) mentions *mu-su* (alfalfa) as produced in plenty and *consumed both by men and cattle*.

(19) The Japanese call *alfalfa* by the name "*uma-goyasi*" (horse-nourishing).

(20) The Tibetan dialect of Ladakh contains the word *Ol* for *alfalfa*. This word refers to the *Medicago sativa* indigenous to Kashmir or possibly introduced there from Iran.

21) Skattschkoff in his article on *Medicago* (Paris. *Revue de l' Orient*, 1864) states that seeds of this plant were for the first time sent from China to Russia in 1840. Laufer questions the suggestion that *Medicago* should not have been known in Russia prior to A. D. 1840 as there are words in the Russian language which were in use prior to A. D. 1840.

(22) The U. S. A. Department of Agriculture is trying to promote the cultivation of *alfalfa* and seeds from China have been introduced for this purpose. In Argentine *alfalfa* has been found very useful for cattle-breeding.

The foregoing notes from Laufer's scholarly history of the two plants (1) *Fenugreek* (*Methi*) and (2) *Lucerne* (*alfalfa*) are very interesting as they show these two plants in their world-perspective. As Laufer has not recorded any definite and detailed history of these plants in India I record below some notes bearing on this history which may clarify our knowledge of these plants at least to some extent :—

(1) The *Rajanighaṇṭu* (c. A. D. 1450) by Narahari of Kashmir mentions *Methika* and its properties as follows :—

Page 231 (*Rajanighṇṭu*, Anandashram, Poona, 1896)

"मेथिका (धान्यविशेषः) ॥ १४ ॥
मेथिका दीपनी चोग्रा कुञ्चिका बहुपुत्रिका ।
मल्लिका शतवीर्या च ज्योतिष्का वल्लरी शिखी ॥ १११ ॥
गुणाः— मेथिका कटुरुष्णा च रक्तपित्तप्रकोपनी ।
अरोचकहरा दीप्तिकरी वातप्रणाशिनी ॥ ११२ ॥"

(This मेथिका seems to be identical with *Fenugreek* used as vegetable and seeds in Indian diet).

"मेथिका (मेथिकाविशेषः) ॥ १५ ॥
मेथिका वास्तिका सेलुरह्वित्थो वनमेथिका ।
अह्वित्थोऽल्पगुणस्तस्या वाजिना सस्तु पूजितः ॥ ११३ ॥"

This variety of मेथिका mentioned as " वनमेथिका " (growing wild) seems to be identical with *Lucerne* (alfalfa). The name अह्वित्य confirms this identification. अह्वित्य was a *horse-fodder* (वाजिना सस्तु पूजितः) says Narahari of Kashmir. Evidently in Kashmir Narahari found अह्वित्य growing wild in his time about A. D. 1450. It appears *Lucerne* was growing in Kashmir in the time of Dallaṇa of Kashmir i.e. about A. D. 1200[1] or even earlier. A plant of the name अश्वबला[2] (*aśvabalā*) is mentioned in the *Suśruta Saṁhita* (pp. 406 and 232-233 of N. S. P. Edition, Bombay, 1938). Dallaṇa explains this term अश्वबला by stating that अश्वबला is a variety

1. Vide p. 132 of *Indian Historical Quarterly*, June 1947—D. C. Bhattacharya's article on "*New Light on Vaidyaka Literature*"—"*Dallaṇa's, date is about 1200 A. D.*, being cited by Hemādri and himself citing Halayudha".

2. Vide my papers on *Aśvabala* in *Bhāratīya Vidyā* (Bombay), July 1946 (pp. 67-80) and in the *Journal of the Oriental Institute* (Baroda) Vol. 1, pp. 39-43.

of मेथिका with large leaves (बृहत्पत्रा मेथिकाभेदः) called हिस्फित्य in the तुरुष्क country. He quotes an earlier commentator ब्रह्मदेव, who states that अश्वबला is 'मेथिकाकारबीजा" in the "यवनभूमि" (country of Yavanas). The commentator ब्रह्मदेव seems to be earlier than A. D. 1000.

Both Brahmadeva and Dallaṇa connect the अश्वबला plant with a foreign country (तुरुष्कदेश, यवनभूमि) which I have identified with Persia as the term हिस्फित्य mentioned by Dallaṇa is identical with *Aspist* (*asp*=horse+*pist*=meals) meaning Lucerne grass i. e. *alfalfa*. The following table shows the chronology of the references to मेथिका recorded above :—

Before A. D. 500	Before A. D. 1000	c. A. D. 1200	c. A. D. 1450
अश्वबला mentioned by सुश्रुत	मेथिका mentioned by ब्रह्मदेव	बृहत्पत्रा मेथिकाभेद = हिस्फित्य in तुरुष्कदेश according to डल्हण	वनमेथिका — अहित्य: liked by horses according to नरहरि

I feel no doubt that हिस्फित्य of the Kashmirian author *Dallaṇa* (c. A. D. 1200) is identical with अहित्य of another Kashmirian Narahari (c. A. D. 1450). It would thus appear that *alfalfa* was grown in Kashmir between c. A. D. 1200 and A. D. 1450 as horsefodder.

(2) I am inclined to believe that the plant अश्वबला mentioned by *Suśruta* is likely to be identical with *alfalfa* or Lucerne grass described by *Dallaṇa* as हिस्फित्य of the तुरुष्क country i. e. Persia for the following reasons :—

(i) The term अश्वबला is significant and means a plant that strengthens the horses (अश्व horse+बल strength). It is possible to suppose that this word is a paraphrase of the *Pahlavi* term "*aspist*" or the *New Persian* "*aspist*" which Laufer has recorded as terms meaning *alfalfa* (Lucerne).

(ii) Laufer states that the Iranian name of *alfalfa* viz. *aspasti* or *aspastu* is mentioned in a Babylonian text of about 700 B. C. and possibly this fodder followed the horse at the time of its introduction into Mesopotamia.

(iii) The Chinese Emperor *Wu-ti* (*140-47 B. C*) *imported alfalfa for an imported breed of horses* and planted it in his famous imperial gardens. He also imported *grapevines, oranges, areca* and *litchi* nuts for his garden.[1]

1. Vide p. 30 of *Short History of Chinese People* by L. Carrington Goodrich, New York, 1951.

(iv) Laufer states that the Chinese of the *Han* period (B. C. 202-A. D. 220) discovered *alfalfa* in Ki-pin (Kashmir). If this statement is correct we can justify Kashmirian Dallana's explanation that the plant अश्वबला mentioned by Suśruta (before A. D. 500) is identical with हिस्फित्य or *alfalfa*.

(v) As *alfalfa* migrated to Mesopotamia sometime before *B. C.* 700 and to China in the reign of *Wu-ti* (140-47 *B. C.*) along with the import of Persian horses to these countries we are warranted in supposing that *alfalfa may have migrated to India along with Persian horses* even prior tothe Han period (B. C. 202—A. D. 220).

(vi) In my paper on *Persian Horses in Indian Literature* (*Poona Orientalist*, Vol. XI, Parts 1 and 2 (1946) pp. 1-17) I have proved that Persian horses were imported to India between A. D. 500 and 1800. They are mentioned as *Pārasīka* or Persian horses.

(vii) In the Mauryan times *Bālhika* horses were part of Indian Cavalry (Vide Chapter 47 - अश्वाध्यक्ष of Kauṭilya's *Arthaśāstra*, Eng. Trans. by R. Shama Sastri, Mysore, 1919, p. 133). The *Mahābhārata* (VIII, 7, 11) also mentions बाह्लीक horses (vide p. 263 of शब्दकल्पद्रुम, Calcutta, Vol. IV). H G. Rawlinson states on p. 18 of his *Bactria* (Bombay, 1909) that the *Bactrians* were known as *Bāhlīkas* according to Hindu accounts. He further states that Bactria was famous for its horses in ancient times (p. 2) and that it was the heart of Iran lying on the great trade route to India. The "Medic herb" (Lucerne) grew all over Iran and made admirable fodder forthese horses. In view of this information it is possible to suppose that Bactrian horses must have been imported to India say between B. C. 500 and A. D. 500 and that *alfalfa*, on which they were fed in Bactria the heart of ancient Iran lying between the slopes of Hindu-Kush and the river Oxus, also followed these horses to India during this period.

(3) According to Laufer *alfalfa* (Lucerne) was used as human food during the time of Emperor *Yuan Tsun* (A. D. 713-755). It was also *consumed both by men and cattle* in China according to *Kou-Tsun-si* (A. D. 1116). The *Suśrutasaṁhita* mentions अश्वबला (शाक) as an edible vegetable and if Dallana's equation "अश्वबला = हिस्फित्य = *alfalfa*" is correct we have reason to believe that *alfalfa* may have been used as foodboth by men and horses as in China in the time of *Suśruta*. The Marathi translation of the *Suśruta Saṁhitā* by Kṛṣṇaśāstri Phadke, Bombay, 1921, Vol. I, pp. 450-451, translates the term अश्वबला by the term मेथी or मेथीची भाजी i. e. ***Fenugreek*** which we eat with relish at present.

(4) Seeds of मेथी (*Fenugreek*) are used in Indian cookery today either whole or in a powdered form. In the *Mānasollāsa* (Vol. II, Baroda, 1939)

composed about A D. 1130 by King Someśvara the use of the powder of मेथिका seeds (*Fenugreek* seeds) is mentioned in the following extracts from the chapter on *Food* (अन्नभोग) :—

Page 124 — "मेथाकचूर्णं तत्र धान्याकस्य च पूलिकाम् ।
निक्षिप्योत्तारयेत्तद्वो घृते धान्यत्र तापयेत् ॥५८॥"

Page 125 — "जीरकस्य च चूर्णेन मेथ(था)कस्य च मिश्रयेत् ॥६७॥"

Page 132 — "एला रामठनोचारमेथिका चर्पटं तथा ।"

I am not aware of the seeds of *alfalfa* being used in Indian cookery today. The term मेथाक or मेथिका used in the above extracts means *Fenugreek* and not the large-leaf मेथिका (बृहत्पत्रा मेथिकाभेदः) or *alfalfa* mentioned by Dallaṇa (c. A. D. 1200), who apparently knew *Fenugreek* or मेथिका with small leaves.

(5) *Fenugreek* was used in the royal kitchen of Emperor Akbar. Its price mentioned in the *Ain-i-Akbari* (*c. A. D. 1590*) [English translation by Francis Gladwin, Calcutta, 1897, page 57] is *10 Dams per Maund.*

(6) In the *Bhāvaprakāśa* of Bhāvamiśra (c. A. D. 1550) मेथिका of two varieties is mentioned in the following stanza :—

"मेथिका वातशमनी श्लेष्मघ्नी ज्वरनाशिनी ।
ततश्चाल्पगुणा वन्या वाजिनां सा तु पूजिता ॥"

(This verse is quoted on p. 318 of *Nighaṇṭu Ādarśa* by Bapalal G. Shah, Part I, 1927).

(The verse refers to मेथिका viz. *Fenugreek* and its वन्या (wild) variety used as horse fodder (*alfalfa*).

(7) In the *Kṣemakutūhala* of Kṣemaśarmā (*c. A. D. 1550*) we get the following stanzas describing the properties of मेथीशाक or मेथिका (*Fenugreek*) :—

" मेथीशाकं पयसि विघृतं स्वेदितं पीडितं हि ।
प्राज्ये स्वाज्ये जरणसहिते मेलितं भर्जितं हि ।
कासोच्छ्वासं प्रशतमधिकं कर्षितो जाठराग्नि-
र्येन प्राप्तं सुबहुगुणितं भक्ष भूयोऽपि भूयः ॥
मेथिका दीपनी हृद्या बद्धविट् कृमिशुक्रकृत् ।
रूक्षोष्णा तत्फलं कासानिलघ्नं व्यकुमांशयत् ॥ "[1]

1. On p. 195 of his edition of *Aṣṭāṅgasaṁgraha* (Sūtrasthāna), Poona, 1940; Pandit Rāmacandraśāstri Kinjavadekar has quoted the following additional stanzas about मेथिका from the क्षेमकुतूहल :—

" स्ववासवासिता चाहं शतपुष्पा यदीरितम् ।
किं तया क्रियते भूत्या स्वेनैव स्वोपभोगिका ॥
महासेनैव सकलं भोजनागारमङ्गणम् ।
वासितं मेथिकाऽज्वटे किं स्ववाससुवासिता ॥ "

— (See p. 318 of *Nighaṇṭu Ādarśa*, Part I,
by Bapalal G. Vaidya).

(8) In the *Aśvacikitsita* of Nakula (Before A. D. 1000) (Calcutta, 1886, p. 51) मेथिका is prescribed for the *piṇḍa* to be given to horses as tonic food :—

" मेथिका धानको, काली सारणी बीजपूरकः ।
पिण्डो दत्तो वराश्वानां तेजोवृद्धिकरः स्मृतः ॥ ७ ॥ "

(पिण्डाध्याय, Chap. 13)

(9) In the *Aśvavaidyaka* of Jayadatta (later than 9th century A. D.) (Calcutta, 1886, p. 334) मेथिका is also prescribed for the *piṇḍa* to be given to horses :—

" सौवर्चलं तथा हिंगु पुष्करं विडदाडिमम् ।
ग्रंथिकं मेथिकास्त्वेषां भिषक् पिण्डं च कारयेत् ॥ ८ ॥ "

(रसायनकल्प, Chap. 68)

At this stage of my inquiry about the history of *Fenugreek* and *Alfalfa* in India I have to raise the following questions for the consideration of scholars interested in this problem :—

(1) What is the etymology of the word मेथिका which appears in Sanskrit works sometime after about A. D. 700 ? Can we equate मेथिका (*Methikā*) with *Medica* ?

(2) If the word मेथिका is Sanskrit can we trace its usages in Sanskrit sources prior to c. A. D. 700 ?

(3) If *alfalfa* (Lucerne) was introduced into India along with *Bactrian* (बाह्लीक) or *Persian* (पारसीक) horses sometime after B. C. 500, is it possible to suppose that the word मेथिका (*Fenugreek*) came to be transferred to *alfalfa* on account of the resemblance of *Fenugreek* with *alfalfa* ?

(4) Is there any evidence in Sanskrit sources to prove that *Fenugreek* is a native of India ? If it is a native of India what was its name prior to the use of the word मेथिका in Sanskrit sources ?

(5) *Fenugreek* is mentioned by *Theophrastus* (died B. C. 287), the Greek philosopher, by Pliny and by *Dioscorides*. If it was adopted by the Romans from the Greeks is it possible to suppose that it was introduced into Greece prior to the time of Theophrastus like *Medica* (alfalfa) introduced into Greece from Media in consequence of the Persian wars under King Darius I (B. C. 521—485) ?

(6) If *Fenugreek* grows wild in Mesopotamia, Persia, Asia-Minor as stated by A. de Candolle is it possible to suppose that *Fenugreek* was

introduced into India from Persia at some stage of the Indo-Persian contact ?

(7) *Fenugreek* occurs wild in Kashmir, the Panjab and in the upper Gangetic plain. Many imported plants with definite history of their importation like that of *cactus* have been found growing wild in some parts of India. The mere fact of a plant growing wild in any locality is no proof of its being a native of that locality.

I shall feel thankful if readers of this article can throw more light on the history of *Fenugreek* and *alfalfa* in India than what I have been able to throw so far. Any references to these plants especially prior to c. A. D. 700 are welcome.[1]

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1. I am thankful to my friend Shri K. N. Dave of Nagpur for his remarks on चषचला communicated to me on 12-11-51 :—

"S. S. Pade equates चषचला with मेथिका (Fenugreek) in his वनौषधिगुणादर्श. The भावप्रकाशनिघण्टु (Chowkhamba Edition, p. 32) has the following verse :—

" मेथिका वातशमनी श्लेष्मघ्नी ज्वरनाशिनी ।
ततः स्वल्पगुणा वन्या वाजिनां सा तु पूजिता ।."

The धन्वन्तरिनिघंटु with राजनिघण्टु (Anandashram, Poona, p. 231) has a corrupt reading of "वाजिना सा तु पूजिता," but it helps you by mentioning the synonym अल्पिका (अल्पगुणः) as a synonym for the second variety of मेथिका or *Fenugreek*. Turning to *Fenugreek* in Webster we find that it is used as medicine in veterinary Science. Evidently this wild species of मेथिका was given as tonic-food to horses in India but was regarded as inferior to the cultivated मेथी for purposes of human treatment and also as culinary condiment."

43. Studies in the History of Indian Plants — Aśvabalā or Hisphittha explained by Ḍallaṇa as a variety of Methikā in the 12th Century A.D.*

In Apte's *Sanskrit-English* Dictionary *aśvabala* is mentioned as the "Name of a vegetable" but no usage of this word has been recorded. This word occurs in the *Suśrutasaṁhita* (*Sūtrasthāna* Chap. 46)[1] in the section on vegetables (शाकवर्ग) as follows :—

"तण्डुलीयक-उपोदिका-अश्वबला-पालङ्क्या-वास्तूक-प्रभृतीनि ॥ २५६ ॥" and
"शाकमाश्वबलं रूक्षं बद्धविण्मूत्रमारुतम् ॥ २६६ ॥"

The commentator Ḍallaṇa (c. 12th *Century A.D.*) in explaining the above text from *Suśruta* records vernacular equivalents[2] for these vegetables current in his time. These equivalents are very important as they are no less than 800 years old. Some of them may be even now current in different provinces of India. In fact they are the only links which might help us to connect the modern names of several plants and

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* *Bhāratīya Vidyā*, Vol. VII, Nos. 7-8, pp. 67-80.

1. Vide pp. 232-233 of *Suśrutasaṁhita* with Dallaṇa's Commentary and Gayadāsa's Commentary edited by Vaidya Jādavaji Trikamji Acharya, N. S. Press, Bombay 1938.

2. It would be useful both for linguistic and medical studies to collect all vernacular equivalents recorded by the earliest commentators on the *Carakasaṁhita*, *Suśrutasaṁhita*, *Aṣṭāṅgasaṁgraha*, *Aṣṭāṅgahṛdaya* and other medical texts (prior to A. D. 1000). डल्हण records many such equivalents and introduces them by the words "इति लोके" I record below some of these equivalents from his commentary on शाकवर्ग :—

कालिन्दं = कलिन्द	जीवन्ती = डोडिका	गोजिवा = गोजीभी
त्रपुसं = तेवसा	अनन्ता = कलिहारी	अत्वगुज: = बाकुची
कर्कारु: = खरवारु	फञ्जी = वाड	वृन्ताक: = वंइगण
सुरसा = तुलसी	शेलु: = लिसाड	कोशातकी = तोरइ
क्षवक: = छिंकणी	वत्सादनी = वत्सवतिया	नाडिका = नाली
खरपुष्प: = बोडयिका	तण्डुलीयक: = चुलाइ	चाङ्गेरी = अम्लचाङ्गेरी
फणिज्झक: = फाणिज	अश्वबला = हिस्फित्थ	कुठिञ्जर: = कोल्हसुभा
उपकुञ्चिका = वृहज्जीरक	पालङ्क्या = पालक	ताम्बूलपत्रं = पर्णम्
आर्द्रा कुस्तुम्बरी = अक्ष (Marathi कोथिंबीर)	वास्तुक: = टङ्कचुच्चू	अगस्त्य: = अगथोया
	सुनिषण्णक: = शिरिवासिका	मुष्कक = मोरवड
घुन्घू: = घुघु		

other articles with their ancient names occurring in the earliest medical texts like the *Carakasaṁhitā*, the *Suśrutasaṁhitā* and others. A systematic glossary of these equivalents is essential for any historical study of Indian plants worth the name. The history of Indian plant-lore means the history of the nomenclature of Indian plants through successive centuries from the first mention of each name of these plants in records that have come down to us from the remotest antiquity.

In the present paper I am concerned with the explanation of the term अश्वबला given by Ḍallaṇa in the 12th Century. *Suśruta* mentions अश्वबला as a kind of शाक or vegetable and Ḍallaṇa explains it as follows in his commentary :—

"अश्वबला तुरुष्कदेशे बृहत्पत्रा मेथिकाभेद एव 'हिस्फित्य' इति लोके, तन्त्रान्तरे मेथिकाहिस्फित्ययो: पृथग्गुणनिर्देशः कृतः—

"वातपित्तहरा तिक्ता लघ्वी श्लेष्मविरोधिनी ।
मेथिका तत्समं किंचिद्धिस्फित्यं पुष्टिदं गुरु ॥"

—इति"

We are told by Ḍallaṇa that in the country of *Turuṣkas* अश्वबला is equivalent to a kind of मेथिका with large leaves commonly called "हिस्फित्य". In another text, however, मेथिका and हिस्फित्य are distinguished as having different qualities. Ḍallaṇa then quotes the Sanskrit verse "वातपित्तहरा...गुरु" in which we are told that मेथिका and हिस्फित्य are similar to each other, though they differ in qualities. Ḍallaṇa does not name the Sanskrit text from which he quotes the above verse. It is, however, clear that this Sanskrit text is earlier than Ḍallaṇa i.e. earlier than c. A. D. 1100. According to Ḍallaṇa अश्वबला=मेथिका (भेद)=हिस्फित्य. Evidently the term "हिस्फित्य" is non-Sanskrit and belongs to the country of *Turuṣkas* (तुरुष्कदेश) as stated by Ḍallaṇa. In early Sanskrit texts the term तुरुष्क is indiscriminately used to indicate foreigners, like Persians, Turks, Arabs, etc. In the present case the exact identification of तुरुष्कदेश mentioned by Ḍallaṇa depends on the identification of the language to which the term हिस्फित्य belongs. In this connection I may note here that Ḍallaṇa shows acquaintance with the usages of words current in different provinces of India[1] and even outside. Generally a commentator may be regarded as trustworthy

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1. In his commentary on chap. 46 of Sūtrasthāna of *Suśruta* he mentions the following countries and places :—

P. 214—अन्तर्वेद्याम्, पाञ्चाले, उत्तरकुरोः, अवन्त्यां नगर्यां, मगधदेशे, दाक्षिणात्याः, देशान्तरे.
P. 219—हिमवद्दाविपर्वतेषु (कस्तूरोमृगः), काश्मीरे, कार्तिकपुरे.
P. 222—पौण्ड्रे,
P. 226—मरुदेश, उत्तरापथ, मगधेषु, कार्तिकेयपुरे, कामरूपे.

in his record of vernacular equivalents current in his province but when he mentions the equivalents as current in other provinces we have to get them verified and corroborated by other contemporary evidence. This position with regard to the value of these equivalents was recognized by a Bengali commentator of *Caraka* viz. Cakrapāṇidatta as early as c. A. D. 1060. He observes in his commentary on the शूकधान्यवर्ग (Chap. 27 of *Sūtrasthāna* of *Carakasaṁhitā*, N. S. Press, 1941, p. 153) as follows :—

"इह च द्रव्यनामानि नानादेशप्रसिद्धानि, तेन नामज्ञाने सामर्थ्यं तथाभूतं नास्त्येव अन्येषामपि टीकाकृतां, तेन देशान्तरेभ्यः नाम प्रायशो ज्ञेयं, यत्तु प्रचरति गौडे तल्लिख्याम: अन्यदेशप्रसिद्धं च किंचित् ।"

In his inability to know correctly the nomenclature of the several items of Indian *MATERIA MEDICA*, says Cakrapāṇidatta, he is in line with other commentators, as this nomenclature must be gathered from the different provinces where it is current. He has, therefore, recorded in his commentary whatever names were current in the *Gauḍa* country, together with a few names current in other provinces.[1] Another early commentator Indu,[2] who is earlier than c. A. D. 1000, makes the following

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P. 227 — काश्मीर (आम्लिका), पूर्वदेशे, उत्तरापथे,
P. 228 — पारसीकेषु देशेषु (पिण्डखर्जूर), उत्तरापथे, (वाताम),
P. 230 — उत्तरापथे,
P. 232 — गृहच्छदेशे (हिस्फित्थ),
P. 235 — कच्छविषये (पिण्याकी शाक),
P. 236 — शाकम्भरीदेश (लवण),
P. 245 — केदारगिरौ.

1. I note here the equivalents recorded by Cakrapāṇidatta in this commentary on chap. 27 of the *Sūtrasthāna* of *Carakasaṁhitā* .—

धान्यवर्गः	चुलुकी = शुशु	सुवर्चला = फग्पुकम्
अम्भः श्यामाका — जलजा श्रोडिका	कोषः = कोष	नीलिनी = बुहा
called "ढे"	शरारिः = शराली	नदीमाषक = उदीमानक
प्रियङ्गुः = काङ्गनी	उत्क्रोशः — कुरल	फलवर्गः
जूर्णाह्वः — जोनार (— जोंधळा)	वर्तकः = वट्टी	आम्रातम् = आमडा
मकुष्टक — मोठ	गोनर्द — घोडाकह	शताह्वक — सेह
मांसवर्गः	कोयष्टिः — कोडा	अनुपाकि — अनुया
तरक्षुः — तरच्छ	कुलिङ्गः — वाऐ	गोरसवर्गः
चाषः = कनक वायस	शाकवर्गः	किलार — क्षीरसा
(or काननचटक)	कालशाकं — कालिया	कृतान्नवर्गः
शशघ्नी — पाजि	मण्डूकपर्णी — मणिमणि	पूपलिका — चापडिका

2. Vide my article on "The Chronological Limits for the commentary of Indu on the *Aṣṭāṅgasaṁgraha* of Vāgbhaṭa I — Between A. D. 750 and 1050" in *Annals* (B. O. R. Institute) Vol. XXV, pt. 217-230 (1945).

observations regarding the importance of vernacular equivalents for terms mentioned in the *Aṣṭāṅgasaṁgraha*[1] of Vāgbhaṭa I :—

P. 57 – "प्रायो ग्रहणमेतेषां मध्ये केचिन्नैवस्वरूपा इति ज्ञापनार्थम् ।
तेषां च पर्याया निघण्टुज्ञानात् देशभाषासंस्करणाच्च किञ्चित् ज्ञायन्ते."

P. 61 – "अत्र शाकानां हरितकानां च येषां नामानि नोक्तानि तेषां देशभाषाविद्भ्यः अधिगम्य अपभ्रंशसंस्कारात् उपयोगिविशेषात् च ज्ञातव्यानि."

P. 66 – "अत्रापि फलानामप्रसिद्धानां च येषां नामानि नोक्तानि तानि नानादेशकुलेभ्यो अपभ्रंशसंस्काराद्विना अधिगन्तव्यानि."

The above observations of Indu make it amply clear that in his time the necessity of understanding the exact meaning of terms used in the *Aṣṭāṅgasaṁgraha* was keenly felt. To get over this necessity Indu suggests the following means :—

(1) निघण्टुज्ञान or Knowledge about certain terms acquired by the use of *Nighaṇṭus* or glossaries then available.

(2) देशभाषासंस्करण *or* अपभ्रंशसंस्कार-Collecting words current in dialects from those who are well-versed in them (देशभाषाविद्भ्यः) or from different families or communities (नानादेशकुलेभ्यः) and then tracing through them the Sanskrit equivalents.

(3) उपयोगिविशेष-In the case of the names of vegetables the identification of their names given in a medical text is facilitated if we study the current specific uses of these vegetables associated with their dialect names and then compare these uses with those associated with their Sanskrit names mentioned in such a text.

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1. Edited by V. R. Kinjavadekar, Poona, 1940 —*Sūtrasthāna* of *Aṣṭāṅgasaṁgraha*.

2. Even in a veterinary treatise we find a *Nighaṇṭu* recorded e.g. in the अश्ववैद्यक of महासामन्त जयदत्त (*Bib. Indica*, Calcutta, 1886) Chapter XII is अश्वशास्त्रनिघण्टु (77 verses) dealing with the *materia medica* in the treatment of horses. This chapter begins :—

"निघण्टुं संप्रवक्ष्यामि पूर्वशास्त्रानुसारतः । द्रव्याणामवबोधस्तु येन सम्यक्प्रजायते ॥१॥"

Knowledge of materia medica (द्रव्याणाम् अवबोधः) can be obtained from a निघण्टु, says Jayadatta. Hence निघण्टुज्ञान was recognized as a necessary preliminary to all therapuetic measures in dealing with the diseases of men and animals. जयदत्त concludes his chapter on निघण्टु with the following verse :—

"काष्ठहारिक-गोपालमालाकारवनेचरान् । दृष्ट्वा नामानि जानीयात् भेषजानां विचक्षणः ॥७७॥"

Names of herbs can be learnt from काष्ठहारिक, गोपाल, मालाकार and वनेचर classes of people (who are in contact with forest produce).

A physician who studies a medical text should not rest satisfied by merely noting a vernacular equivalent of a Sanskrit term. He must make sure that the uses of an article associated with its Sanskrit name must tally with those associated with its vernacular name. The problem of the correct identification of several items in the ancient Indian *Materia Medica* appears to have been a problem to the physicians of Indu's time as it is to the physicians of today. Fortunately the modern Āyurvedic physician is now in a better position than his confreres who lived more than a thousand years ago. We can now test the properties of things clinically and chemically and thus verify the statements of ancient medical texts and see how far they are correct. If ancient observations about the properties of certain products are corroborated by chemical and clinical tests the popular belief in the efficacy of these products will be strengthened and *Ayurveda* will get a new lease of life. We should, therefore, examine all ancient observations and explore their practical possibilities for the well-being of humanity with the aid of modern scientific research.

My object in recording in the foregoing lines the remarks of Indu (*between 700 and 1050 A. D.*), Cakrapāṇidatta (*c. A. D. 1060*) and Ḍallaṇa (*c. A. D. 1100*) on the question of the identification of several items of *materia medica* is not merely historical but practical as well. The history of plant sciences is closely connected with the history of *materia medica* and unless the articles mentioned in ancient Indian medical texts are correctly indentified we can never hope to get the fullest benefit of the experience of the ancient medical practitioners as recorded in these texts. In studying the history of Indian *materia medica* it is essential for us to know the *meteria medica* of other nations, that were in contact with India in historic and even pre-historic times. Foreign words occurring in early medical texts have, therefore, a peculiar significance. The term हिस्फित्थ mentioned by Ḍallaṇa (12th Century A. D.) as current in तुरुष्कदेश to indicate the meaning of the term अश्वबला used by Suśruta is, therefore, very important. We have already seen that Ḍallaṇa regards अश्वबला as a variety of मेथिका but with large leaves (बृहत्पत्रा) and then records its current foreign name हिंस्फत्थ. In this connection I made an inquiry of my ever-obliging friend Khan Bahadur Prof. A. K. Shaikh and I have great pleasure in recording below his reply to my inquiry, dated 12th August 1945 :—

"Your favour of 7th August regarding हिस्फित्थ. I have already written to you that the word हिस्फत्थ is neither Arabic, nor Turkish, but it is a *Persian* word.

हिस्फिरत्य is a Sanskritized form of the Persian इस्पिस्त or अस्पिस्त (which is sometimes shortened to सपित्त) and which is explained in Dr. Steingass' well-known *Persian-English Dictionary* as meaning "*Trefoil*" or "*Clover*."

"*Ispist*" or "*Aspist*" is called in Arabic "*Fasfisat*" or "*Fasfasat*" and in Turkish "*Yunja*" or "*Yuncha*." The latter is a well-known fattening fodder for horses, which in my opinion is no other than whar we call here लसुणघास i.e. "*Lucerne grass*", which is so freely given to horses in India, Persia and Turkey for fattening them and making them strong (cf. अश्वबला).

There are several varieties of this grass or plant and मेथी is one of them. सुश्रुत is right and डल्हण is also right.

Another name used for "*Lucerne*" in English is "*alfalfa*," which has directly descended from the Arabic "*Fasfisat*". which itself is derived from the Persian "*Aspist*." This is what I find in the books that I have in my library. In none of these books I find any attempt made to explain the word etymologically. I am not a philologist ; but what strikes me at present is that the word "*Aspist*" is a compound word made up of "*Asp*" which means "*horse*" (cf. अश्व=अश्व horse) and "*pist*" which means "*meals*' (cf. Sanskrit पिष्ट ; Marathi पीठ).

I believe this short note on हिस्फित्य will give you what you want for the present."

I have to record here my best thanks to Khan Bahadur Prof. Shaikh for the above learned note on हिस्फित्य which clarifies and corroborates Ḍallaṇa's reference. I have now to request other Persian scholars to throw more light on this word by recording usages of the Persian word इस्पिस्त or अस्पिस्त in Persian sources earlier than Ḍallaṇa i. e. earlier than A. D. 1100. I have also to request Sanskrit scholars to point out to me any mention of the Persian term "हिस्फित्य" in any Sanskrit sources prior to A. D. 1100 or posterior to it. We must also identify the "तन्त्रान्तर" from which Ḍallaṇa quotes the verse viz.—

" वातपित्तहरा तिक्ता लघ्वी रक्तेष्वविरोधिनी ।
मेथिका तत्समं किंचिद्धिस्फित्यं पुष्टिदं गुरु ॥ "

Evidently the term हिस्फित्थ was known to Sanskrit medical writers earlier than Ḍallaṇa's time i. e. earlier than c. A. D. 1100.

In his *Patna-Gaya Report* (1811-1812) Francis Buchanan devotes a section (VIII-pages 529-530) to "*Plants cultivated for feeding cattle.*" In this section he mentions two kinds of मेथिका viz. *Ban methi* (वनमेथी) and *Ban metha* [वन मेथ (था ?)] in the following extract :—

" There are several plants which grow as weeds among the winter crops that might be cultivated with great advantage as artificial grasses.

They would require two or three waterings in the season but I have no doubt would bear that expense. These, which I observed were as follows :—

Medicago Cordata vel *lappacca* of the Encyclopèdie called here Bokehi.

Medicago lupulina called here Osna and Amrora.

Trigonella monspeliaca called here Banbuti.

Trifolium indicum called here *Ban Methi.*

A Trifolium allied to the above but not yet described called BANMETHA

ViciaSativa, called Bara Akta.

An Ervum very like *Hirsutum*, but it is not hairy. It is called Chhota Akta and Misia."

Buchanan also refers to *Lucern* as distinct from *Ban methi* or *Banmethi* :—

"*Lucern* I found sold in the markets of Patna, where it is called *Maruyan*, but I am told that it was *brought from the gardens of Europeans*, where it has become wild among the herbage that is watered for the sake of verdure, and cut in order to look neat. The workmen sell the cuttings to great advantage."

Buchanan was not only interested in plants of economic value but also in plants of medical value. His remarks on the value of Indian drugs are, therefore, important for any study of the history of European interest in Indian drugs. These remarks are as follows :—

"*Patna-Gaya Report* (Pub. by Bihar and Orissa Research Society) pages 450—451—

"I have made very considerable progress in ascertaining the plants of this country that are used in medicine, but as the number is exceedingly great, and as all I can say on the subject must be confined to disquisitions strictly scientific, and totally uninteresting and unintelligible except to the physician and botanist. I shall not here detail any of the information I have procured. I can, however, recommend the subject as highly deserving the attention of government as well as of men of science. From the state in which European practitioners of medicine are here placed no very great discoveries can be expected, although some useful practices of the native physicians, by mere chance, as it were, have been brought into notice. It appears to me, however, probable that among a farrago of useless *drugs, they possess several of very considerable powers and that in many cases they apply them with skill.* I am further persuaded that *with*

a very little assistance from Government[1] *these useful practices might soon be brought to light*, which never, I suspect will be done by translating their books, owing to the *terrible confusion and uncertainty that prevails both in their pharmaceutical and nosological nomenclature*. What is wanted is a native physician to prescribe and a European to give an account of the symptoms of the diseases and of the effects of the practice *Such substances as have been actually employed, where the practice seems to have been successful, are then to be carefully ascertained*. If they are the produce of the vicinity, this may be done by sending them to the botanical garden for investigation or if they have come from a distance, by accurately describing them and endeavouring to trace them to the country, where they have been produced, a labour which ought, of course, to fall entirely on the superintendent of the Botanical Garden.[2]

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1. Dr. Girindranath Mukhopadhyaya in his Introduction to *History of Indian Medicine*, Vol II, 1926, p. 13 ff. has described the work done by Government to resuscitate knowledge in Ayurveda from A. D. 1807 onwards.

2. In *A. D. 1887* Royal Botanic Gardens were founded at Calcutta through the exertions of Lt. Col. Robert Kyd, Secretary to the Military Board. Kyd was also its First Superintendent (Vide p. 435of *Cultural Heritage of India*. Dr. G. P. Majmudar's paper on *Botany in India-Past and Present*). I may note here the Chronology of Government efforts to revive Āyurveda :—

A. D. 1811 — Lord Minto recommended the establishment of Colleges at Nadia and Trihut.

A. D. 1813 — East India Act authorized the Governor-General to set apart more than a lac of rupees for the revival and improvement of Sanskrit literature and the promotionof knowledge ofEuropeanSciences in India.

A. D. 1824 — *Sanskrit College*, opened at Calcutta on 1st January, 1824 — *Calcutta Madrassa* was founded in A. D. 1781 and *Hindu College* was founded in 1817. — Medical Science, European and Indian, wastaught in the *Sanskrit College*.

A. D. 1826 — Dr. Tytler began his lectures on European Medicine and Professors were appointed to teach *Caraka, Suśruta, Bhava Prakāśa* etc.

A. D. 1827 — Classes opened for Āyurvedic Students—Madhusudan Gupta, a student of these classes becomes Professor of Medicine-Professor Wilson was satisfied at the progress of these classes (Vide p. 994 of *Affairsof the East India Company*, 1832).

A. D. 1831 — Dr. J. Grant began his lectures on Anatomy, Physiology, Diagnosis and Surgery.

A. D. 1833 — Lord William Bentinck appointed a *Committee* for the revision of the questionof medical education in Bengal.

A. D. 1834 — The General Committee working under Rev. Dr. Grant decided to introduce English as medium of instruction and *abolished the medical classes* in the *Sanskrit College* and *Madrassa*. Dr. Tytler was against this abolition.

I should, therefore, propose that a skilful native physician should be employed under the *Superintending Surgeon of the Presidency*, who in the different *native hospitals* under his inspection should point out patients proper for the physician's management, and who should direct the surgeons, under whose care the patients may be, to take *careful account of all the proceedings of the native physician* and of the symptoms of the diseases that he treated, *which accounts, together with specimens of the drugs employed should be transmitted to the medical board*, and this should make an annual report on what had been observed, and *publish for general benefit any useful discoveries that may be made.* The expense of a salary to the native physician, and of the drugs, with perhaps a clerk to make a fair copy of the cases, seem to me all that could reasonably be charged, and should not exceed 100 R. a month.

There are indeed three chief sects of native physicians, the *Yunani* (Ionians), among the Muhammedans, the *Sakadwipi Brahmans* in Bihar, and the *Baidyas* in Bengal. Even if one of each of these was employed, which might be satisfactory, each treating different patients in his own manner, the expense would be altogether trifling. *More effectual means might no doubt be proposed for bringing to light the medical science of the natives* but they would be attended with some considerable expense as *a young surgeon, who should dedicate his time to the study of the languages and science of the natives must relinquish his other views and would require a considerable allowance.*"

In spite of this early European interest in Indian Medical drugs and Indian Medicine about A. D. 1807, and the subsequent efforts to revive Āyurvedic studies through the Sanskrit College and Madrassa of Calcutta after 1824, the study of Āyurveda under Government patronage came to an end in 1835, when Government ordered the abolition of Native Medical Education and the Medical classes at the above institutions.

A. D. 1835 — Famous minute of Lord Macaulay (2nd February, 1835), introduced English as medium of instruction.— On *20th February* 1835 the Medical College of Bengal was founded with Dr. Bramleyas Superintendent.— On *28thJanuary, 1835* Governmentorderedthe abolitionof Native Medical Institution and the Medical Classes of Sanskrit College and Madrassa.

In this way the study of Āyurveda under Government partronage came to an end although this study was kept alive by the zeal and spirit of physicians without any help from the state, says Dr. Girindranath Mukhopadhyaya (Vide p. 18 of his Introduction to *History of Medicine*' Vol. II, Calcutta, 1926).

The *Sanskrit Worterbnch* (Petersburgh)[1] records no other references to अश्वबला except those in the *Suśruta Samhita*. If अश्वबला is a kind of मेथिका called in Persian हिसिफ्य (इसिम्त or असिम्त) we must investigate the antiquity of the word मेथिका or मेथी. In this connection we may note here the remarks of A. K. Nairne in his *"Flowering Plants of Western India"*, London. 1894. These remarks are as follows :— *Page 77 — T. Foenugroecum* — Erect, robust, stipules entire. leaflets lanceolate oval or obovate, flowers pretty, pod long, thin and pointed. *Methi.*

Commonly cultivated for *baji*, as it is also in S. Europe. It was adopted as fodder by the Romans from the Greeks ; hence the specific name."

If मेथिका or मेथी was adopted as fodder by the Greeks and Romans, it is no wonder that it should be mentioned as अश्वबला in the *Suśruta Samhita*. In the two veterinary treatises[2] dealing with horses called the अश्ववैद्यक by Jayadatta and Nakula we find the word मेथिका in the following extracts :—

P. 334 (of अश्ववैद्यक ed. by Umesh Chandra Gupta, *Bib. Indica*, 1886, Calcutta)—(अश्ववैद्यक by जयदत्त)
"जीवर्चलं तथा हिगु पुष्करं विडदाडिमम् ।
अधिकं मेथिकाश्चैषां भिषक् पिण्डं च कारयेत् ॥८॥ "
(रसायनकल्प—chap. 68)

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1. "अश्वबला — (von अ०+बल) f. N. einer Gemuse-pflanze-*susruta*. 1, 220, 12 ; 2. 48. 10.

2. Keith (*History of Sanskrit Literature*. Oxford. 1928. p. 465) refers to अश्ववैद्यक of जयदत्त and अश्वचिकित्सित of नकुल but does not give their chronology. Dr. Girindranath Mukhopadhyaya (*History of Indian Medicine*. Vol. II. Calcutta,1926, pp. 356 — 399) has written a big chapter on शालिहोत्र in which he refers to the works of जयदत्त and नकुल but does not discuss their chronology. Nakula's अश्वचिकित्सा is also called शालिहोत्र. जयदत्त quotes from शालिहोत्र, नकुल, शार्ङ्गधर and जयदेव (p. 375 of chap. on शालिहोत्र by Mukhopadhyaya). In the *Glossary* of Drugs mentioned by जयदत्त, given by Umesh Chandra Gupta at the end of his Edition of अश्ववैद्यक of जयदत्त we find अहिफेन or *Opium* (p. 3). Thakore Saheb of Gondal (p. 126 of *Aryan Medical Science*, London, 1896) states that Opium (अहिफेन) was imported into India from Arabia synchronously with the advent of Mahomedans. शार्ङ्गधरसंहिता (Poona, 1917, ed. by Y. Dikshit) refers to अहिफेन (p. 75-"अहिफेनं पलोन्मितम्" and p. 165-"गुंजाहिफेनाविस्रोताः"). According to *Hobson-Jobson* the word *Opium* is Greek in origin. The Arabic word *afyun* is derived from a Greek word. Dioscorides (c. A. D. 77) and Pliny (c. A. D. 70) refer to *Opium*—Usages recorded in *Hobson-Jobson* are dated c. A. D. 70 (Pliny) and *1511, 1513, 1516, 1563, 1568, 1598, 1610 etc.* Opium-poppy was taken to China from Arabia at the beginning of *9th Century.* Possibly it was introduced into India after 9th century A. D. जयादित्य's अश्ववैद्यक is possibly *later than 9th Cent. A. D.*

Page 51 (of अश्वचिकित्सित by नकुल) *Bib. Ind*, Calcutta, 1886—
"मेथिका धानकी, काली शारणी बीजपूरकः ।
पिण्डो दत्तो वराश्वानां तेजोवृद्धिकरः स्मृतः ॥७॥ "
(पिण्डाध्याय, chap. 13)

This use of मेथिका in the treatment of horses supports Dallana's explanation of अश्वबला as a kind of मेथिका called in Persian हिस्पित्थ (इस्पिस्त or अस्पिस्थ) which means fodder for horses.

I have already quoted Khan Bahadur Prof. Shaikh's opinion that इस्पिस्त (= अश्वबला) is no other than what we call "Lucerne grass" so freely given to horses in India, Persia and Turkey. In this connection I reproduce below the remarks of A. K. Nairne on the antiquity of Lucerne grass (Page 77 of *Flowering Plants of Western India*) :—

"5. *Medicago* (*M. Sativa*).

Purple medick or *Lucerne*, not wild in India any more than in England, but widely cultivated.

Hehn says that the name *medicago* (originally *medike poa*) shows that the plant came originally from Media and quotes the following strong euology from Columella[1], a Spanish writer on agriculture in the reign of Emperor Claudius :—

"*Lucerne* once sown lasts ten years; it is sown four times a year regularly, sometimes six; it does not exhaust the soil, but rather enriches it, it makes lean cattle fat, and heals the sick; one acre of it will keep three horses the whole year."

The above description or Lucerne of *Medicago* of c. A. D. 41 establishes clearly the antiquity of this plant for more than 2000 years. If *Lucerne* is not wild in India and if its home was originally in *Media*, we have to see how it has migrated to India. If *Lucerne* is a variety of *Methika* can we establish any relation of the word मेथिका with *medick*[2] or

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1. Vide p. 162 of Smith's *Smaller Classical Dictionary* (Everyman's Library, London, 1913) :—

Columella, L. Junius Moderatus a native of Gades in Spain and a contemporary of Seneca. We have no particulars of his life, but Rome appears to have been his ordinary residence. He wrote a work on agriculture (*De Re Rustica*) in 12 books which is still extant. His style is easy and ornate."

Seneca (L. Annaeus), the philosopher was one of the early instructors of the Roman Emperor Nero (A. D. 54-68). Nero was adopted by Claudius I (A. D. 41-54). Seneca was born a few years Before Christ and died after A. D. 65 by order of a tribune.

2. See *Shorter Oxford Dictionary*, p. 1227 : —

Medick—late M E. [ad. L. medica, ad Gr...meaning 'Median grass']. Any plant of the genus *Medicago*, especially *M. Sativa*, Purple medick or Lucerne.

Medicago or *Media ?* The word मेथिका used by जयदत्त and नकुल in the अश्ववैद्यक and अश्वचिकित्सित, which are evidently later than the 9th century A. D is not found in early medical texts. The only equivalent of मेथिका in early medical texts is the term अश्वबला, which in itself is adjectival, being a compound of अश्व and बल meaning "*giving strength to horses.*" Perhaps the word मेथिका is connected with the names *Media*, the home of Lucerne or मेथिका and the consequent names *medick* and *Medicago* Can any linguist explain how the word मेथिका is derived historically or otherwise ? As मेथिका with its different varieties, whether used by men or by cattle, has migrated from its original home *Media*, are there any linguistic traces of this migration in the name मेथिका used by जयदत्त and नकुल (later than A. D. 800) and डल्हण (c A. D. 1100) who mentions its Persian name हिस्पिन्य (or इस्पित्त) ?

Though मेथिका appears to have been introduced early into India as fodder for horses as the term अश्वबला used by *Suśruta* indicates, a variety of it came to be used in Indian diet. Accordingly in later medical texts it was mentioned as an edible vegetable with its properties as illustrated in the following verses[1] quoted by Pt. Ramachandra Shastri Kinjavadekar on p. 195 of his edition of अष्टांगसंग्रह (सूत्रस्थान), Poona, 1940 (Appendix) :—

मेथिका — " स्वाधासिता चाहं शतपुष्पा यदीरितम् ।
कि तया क्रियते भूत्या स्वेनैव स्वोपभोगिका ॥
मदासेनैव सकलं भोजनागारमङ्गणम् ।
वासितं मेथिकाऽच्चष्टे कि स्ववाससुवासिता ॥
मेथीशाकं पयसि विघृतं स्वेदितं पीडितं हि
प्राज्ये स्वाज्ये जरणसहिते मेलितं भर्जितं हि ॥
कालोच्छ्वासं प्रसृतमधिकं कर्षितो जाठराग्नि-
र्येन प्राणं सुबहुगुणितं भक्ष भूयोऽपि भूयः ॥

P. 1174—**Lucerne**, lucern-1626 (In 17th and 18th centuries agricultural books, often *la lucerne* with Fr. definite article) [a F. *lucerne* ad. mod., Pr. *luzerno*; etym. unknown]. The leguminous plant *Medicago Sativa* resembling clover, cultivated for fodder, purple medick.

1. Pt. Kinjavadekar has recorded extracts in his Appendix to अष्टांगसंग्रह (सूत्रस्थान) pertaining to the following eatables and vegetables :— तक्र, सूप, मुद्गकुल्माष, माषकुल्माष, घृत of cow, buffalo, the goat, पर्पट (Marathi पापड), कृशरा, कढी ; *Vegetables and Fruits* :— वृन्ताक, बिल्वीफल, शिम्बी, कोशातकी, पटोल, तुम्बीफल, कूष्माण्ड, सुस्वादसुन्दर a preparation of कूष्माण्ड, गुलिका, खण्डकूष्माण्डक, आम्लकूष्माण्ड, आसुरी, आमलकफल, कारवेल्लीफल, कर्कोटकफल, हरितवणक, उदुम्बरफल, आर्द्रकन्द, कर्कटीफल, कुटजफल, कदलीफल, राजमाषादि-फल, एरण्डजफल, वास्तुक, तण्डुली, शतपुष्पा, मेथिका, प्रपुन्नाट, लोणिका, वज्रकशाक, पालिक्य, चुक्रक, कौसुम्भ, कुटजपुष्प, शोभाञ्जन, कचनार, अगस्तिकुसुम, कोशातकीपल्लव, आम्रपल्लव, निम्बपल्लव, कदलीदण्ड, सार्षपदण्ड, मूलक, कदलीकन्द, सूरण, मृणाल. — The extracts pertaining to these edibles are useful for the history of Indian dietetics, as they describe the manner of preparing dishes from them, and also describe their medical properties.

मेथिका दीपनी हृद्या बद्धविट् कृमिशुक्रनुत् ।
रूक्षोष्णं तत्फलं कासानिलश्लेष्मकृमीञ्जयेत् ॥ ”

As regards the migration of मेथिका to India I have to observe that it may have followed the importation of Persian and Turkish horses from early times. Some of the foreign breeds of horses were very popular in India. Jayadatta[1] in his अश्ववैद्यक has recorded in a special chapter the several kinds of horses according to their native places. Among these kinds he states that *Persian* and *Tajika* horses are the best (उत्तमास्ताजिकाः प्रोक्तास्तथा पारसिकाश्च ये). He also refers to Turkish horses (तुरो जाताः) and describes them (तुरुष्कः कीर्तितो वाजी स्थूलवक्त्रमुखश्च यः). Nakula[2] in his अश्वचिकित्सित refers to a few kinds of horses in which *Tajika* and *Khuraśana* horses are stated to the best (ताजिकाः खुरशाणाश्च उत्तराश्चोत्तमा हयाः). In view of these explicit references to Persian and Turkish horses in Sanskrit treatises on horses it is possible to suppose that the regimen of these horses as current in Persia and Turkey may have been adopted by Indians with a view to keeping them fit and consequently मेथिका or हिस्पित or *Lucerne* grass must have been imported to India and cultivated on Indian soil from the time, when these horses began to be imported to India.

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1. Vide Chap. VI of अश्ववैद्यक (*Bib. Indica*) pp. 70-73—I note the kinds of horses according to जन्मदेश mentioned by जयदत्त in this chapter :—ताजिकाः, पारसिकाः, कैकाणाः, तुरोजाताः, कीराः, भूरुष्टाः, माण्डजाः, पार्वताः, सैन्धवाः, सारस्वताः, सम्मलाः, कुशाः, उत्तरदेशोद्भवाः, प्राग्दक्षिणोद्भवाः, कोङ्कणाः, पश्चाद्देशोद्भवाः, दाक्षिणात्याः, पूर्वदेशसमुद्भवाः.

2. Videchap. II of अश्वचिकित्सित (*Bib. Indica*)-pp.4-7—नकुल mentions the following kinds of horses :— ताजिकाः, खुरशाणाः, उत्तराः, गोजिकाणाः, कैकाणाः, भाण्डजाः, राजस्थलाः, गोहराः, शावराः, सिन्धुपाराः —It is worth-while studying the history of the foreign horse-trade in India from early times, if such a study has not been attempted already by any scholar. The *materia medica* for the treatment of horses as recorded in the treatises of जयदत्त and नकुल is likely to contain some foreign elements, whichneed to be ascertained.

44. Studies in the History of Indian plants — Some References to Aśvabalā in the Carakasaṁhitā and the Suśruta-Saṁhitā*

I published in *Bhāratīya Vidya* (July 1946) a paper on "Aśvabalā" a vegetable mentioned by *Suśruta* in the *Śākavarga* of *Sūtrasthāna* (pp. 232-233 of N. S. Press Edition, 1938) Chap. 46 in the following lines :—

"तण्डुलीयक–उपोदिका–अश्वबला–पालङ्क्या-
वास्तूक–प्रभृतीनि ॥ २५६ ॥" and
"शाकमाश्वबलं रूक्षं बद्धविण्मूत्रमारुतम् ॥ २६१ ॥"

The commentator Ḍallaṇa (c.A D. 1100) explains अश्वबला as "बृहत्पत्रा मेथिकाभेद" known as हिस्फित्थ in तुरुष्कदेश. Ḍallaṇa further states : in a तन्त्रान्तर मेथिका and हिस्फित्थ are described as having different गुणs or properties as follows :—

"वातपित्तहरा तिक्ता लघ्वी श्लेष्माविरोधिनी ।
मेथिका तत्समं किंचिद्धिस्फित्थं पुष्टिदं गुरु॥"

According to Prof. A. K. Shaikh "हिस्फित्थ" is same as the *Persian* word "इस्पिस्त" or "अस्पिस्त" which is called in *Arabic* "*Fasfisat*" and in *Turkish* "*yunja*" or "*yuncha*." Prof. Shaikh thinks that हिस्फित्थ = *Aspist* (*asp*, *i.e.* horse+*pist*, *i.e* meals)=Lucerne grass (मेथी is one of the varieties of this grass).

We have no means of knowing the exact meaning of the term "अश्वबला" used by *Suśruta* except Ḍallaṇa's explanation recorded above. It is, therefore, premature to make any definite assertion about the accuracy or otherwise of Ḍallaṇa's equation

"अश्वबला=हिस्फित्थ=बृहत्पत्रा मेथिकाभेद."

We must, however, see if there are any other references to अश्वबला in *Suśruta*. If such references are found we must see what explanation of these references is offered by Ḍallaṇa in his commentary. Since the publication of my paper on *Aśvabalā* in the July 1946 issue of the *Bhāratīya Vidyā* (pp. 67-80) I was fortunate in coming into contact with Mr. B.C. Deb, M.A., B.L. of Calcutta. I sent to him my paper on *Aśvabalā*, which interested him very much. He lost no time in studying it closely

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**Journal of the Oriental Institute, Baroda*, Sept. 1951, pp. 1-5.

and making his observations on it. I requested him to put these observations in the form of a paper so that they will be of immense use to brother scholars interested in this subject. In spite of his busy life as an Advocate Mr. Deb responded to my request and sent me his paper on *Aśvabala*. I have great pleasure in publishing it along with this paper.

I agree with Mr. Deb in the following remarks in his paper :—

"So, it seems Suśruta's अश्वबला is a variety of मेथिका (मेथिकाभेद), being the first of the above two varieties, *i.e.* मेथिका proper or *officinalis*, *T. Fænum Graecum*."

As regards Mr. Deb's other remarks I am not quite competent to evaluate them as I don't possess the required botanical knowledge or the reference books pertaining to a specialised study of botany. I have however, to keep at the disposal of Mr. Deb the following additional references to अश्वबला .—

(1) Mr. Deb states that "the word अश्वबला is found in *Suśruta* but seems to be *absent in Caraka*." I have to point out that the term अश्वबला is mentioned by *Caraka* in the following extract[1] :—

Carakasaṁhita (p. 387 of N. S. Press Edition, 1941) *Cikitsasthāna*, Chapter 1, *Pāda* 4 (रसायनपाद) :—

ब्रह्मसुवर्चला..... ... . नारी नाम-
ओषधिः "अश्वबला" इति विज्ञायते
या बल्वजसदृशपत्रा..............दशवर्ष-
सहस्राणि आयुरनुपद्रवं चेति"

(for "बल्वज" the foot-note records the variant "पुनरज"). According to *Manusmṛti* II, 43 बल्वजः-जा = A kind of coarse grass (Apte's Dict.)

Cakrapāṇidatta (c. A. D. 1060) does not explain the term अश्वबला in the above extract as will be seen from the following extract from his commentary :—

" ब्रह्मसुवर्चला प्रभृतयो यथोक्तलक्षणादिव्यौषधयः
नातिप्रसिद्धाः । आदित्यपर्णीं सूर्यावर्तमेव
देशविशेषजातं केचिद्वर्णयन्ति । अश्वबलेति
ज्ञायते इति ऋषिभिरेवानेन नाम्ना ज्ञायते
न लौकिकैः, लोकाप्रसिद्धत्वात् ...... ॥ "

1. I owe the reference to this extract to my friend Dr. Shrinivas Murti, Director, Adyar Library, who sent me on 22-11-1946 some extracts bearing on my studies for which I record here my best thanks. Without such voluntary co-operation it is impossible to tackle or clarify complicated problems of history and philology.

It will be clear from the above extract from the *Carakasaṁhitā* that a plant of the name नारी[1] was known as " अश्वबला " to *Caraka*

If now the अश्वबला plant mentioned by *Caraka* is identical with the अश्वबला mentioned by *Suśruta* and if further Ḍallaṇa's explanation of अश्वबला as हिस्फित्य is true to facts we can put down the following equation :—

नारी = अश्वबला = मेथिकाभेद = हिस्फित्य

I hope Mr. Deb will examine the correctness or otherwise of the above equation in the light of his study of medical commentaries and works on botany and *materia medica*. I would also like to know from him if he has noted any references to the plant नारी in medical or non-medical texts.

(2) In Chapter I of *Cikitsāsthāna* of the *Suśrutasaṁhitā* (p. 406 of N. S. P. Edition) the use of the leaf of अश्वबला (आश्वबलं पत्रं) is prescribed against wounds as this chapter deals with the treatment of wounds (द्विव्रणीय चिकित्सित). The verse (113) of this chapter reads as follows :—

" पत्रमाश्वबलं यच्च कास्मरीपत्रमेव च ॥ ११३ ॥ "

" पत्रदानविषयमाह — स्थिराणामित्यादि । दोषविशेषेण पत्रविशेषमाह । एरण्डेत्यादि । सुगमम् । पत्रमाश्वबलमिति । अश्वबला उपोदकी तस्या इदमाश्वबलं, ब्रह्मदेवस्तु अश्वबला यवनभूमौ मेथिकाकारबीजा भवतीत्याह । "

The expression " अश्वबला उपोदिका," which appears to explain अश्वबला = उपोदिका, seems to me textually faulty as in Chapter 46 of the सूत्रस्थान, *Suśruta* mentions उपोदिका and अश्वबला as two different vegetables.

(" तण्डुलीयक — उपोदिका — अश्वबला — पालङ्क्या-वास्तूक — प्रभृतीनि ॥ २५६ ॥ " — pp. 232–233)

Ḍallaṇa comments on this passage as follows :—

" तण्डुलीयकः 'चुलाइ' इति लोके ; उपोदिका पोइ ; अश्वबला तुरुष्कदेशे ,हत्पत्रा मेथिकाभेद एव हिस्फिन्थ इति लोके "

If उपोदिका = पोइ according to Ḍallaṇa, he should not be made to equate it with अश्वबला. If we drop " उपोदिका " from the passage on p. 406 and merely read " अश्वबला तस्या इदमाश्वबलं " we can get better sense, as Ḍallaṇa is explaining the adjectival form "आश्वबलम्. "

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1. See p. 604 of *Vaidyaka-Śabdasindhu*, revised and enlarged by Kaviraj Nagendranath Sen, 1888 —

" नारी, स्त्री । तन्नामकौषधिविशेषे । या अश्वबलेति कथ्यते । यस्याः पत्रम् अश्वसरशाख्य । च. चि. १ अ. रमण्यां । मेये मानुष । सा मातृशोणितोत्तरा । विषमतिथौ जाता च । सुखबोधः ॥ "

See also pp. 843-844 — मेथि: (का, थी) स्त्री (Trigonella *Fœnum Graecum*) *Fenugreek*…… ………..सा द्विधा मेथी वनमेथी……..तत्पर्यायः—……..गुणाः—……..रा. नि. व. ६ । अन्या— " तत्र स्वल्पगुणा वन्या वाजिनां सा तु पूजिता " भा. (भावप्रकाश ?) ।

" मेथिका वातशमनी वेजिका वातला मता " । अत्रि, १६ अ. ॥

Ḍallana quotes an earlier commentator ब्रह्मदेव in explaining the reference to " आश्वबलं पत्रम् " and states that according to this commentator अश्वबला is " मेथिकाकार बीजा " in the यवनभूमि. The " यवनभूमि " mentioned by Brahmadeva corresponds to the " तुरुष्कदेश " mentioned by Ḍallaṇa. The expression— " मेथिकाकार बीजा " may mean " Having the आकार (state or appearance) and बीज (Seed) of मेथिका." If Ḍallaṇa's statement is correct ब्रह्मदेव appears to have known much earlier than Ḍallaṇa (c. A. D. 1100) the relation of अश्वबला with मेथिका. The connection of अश्वबला with यवनभूमि referred to by Brahmadeva is also very significant chronologically as Brahmadeva appears to have flourished earlier than c. A. D. 1000.[1]

(3) The third reference to अश्वबला in *Suśruta* is in Chapter 6 of चिकित्सास्थान, which deals with the treatment of piles (अर्शसां चिकित्सितम्). See p. 434 of N. S. Press Edition, 1938. It is as follows :—

"......यथा दोषं शाकैर्वास्तुक—तण्डुलीयक —जीवन्त्युपोदिका—
अश्वबला ......वल्लीभिरन्यैर्वा ।"

Ḍallaṇa explains :—

"॥ अश्वबला हिरफीत्यो मेथिकाभेदः ॥"

It would be clear from this reference that अश्वबला of Suśruta was identified in Ḍallaṇa's time with a variety of मेथिका, called by its foreign name हिरिफत्य or हिरफीत्य. Whether the अश्वबला of Suśruta is identical with the अश्वबला of *Caraka*, is a problem, which needs to be investigated.[2] In the absence of Word-Indices to our voluminous early medical texts the study of individual words and their explanations given by early commentators is much handicapped. Recently many Āyurvedic institutions have been started in India. If the authorities of these institutions really care to stimulate a critical study of early medical texts they must organize their work on modern lines and publish not only the critical editions of these texts but other ancillary compilations like word-indices etc. which would help a close study of the enormous linguistic material and thus bring it within the domain of exact scholarship.

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1. Vide my paper in *Indian Culture* (1944) Vol. XI, pp. 36-39. Cakrapāṇidatta (c. A. D. 1060) mentions ब्रह्मदेव as an earlier commentator (पूर्वटीकाकृत्) in the following extract :—

" अयं च पाठः पूर्वटीकाकृद्भिः भासदत्त—स्वामिदासापाठवर्म-ब्रह्मदेव-प्रभृतिभिः
व्याख्यातत्वात् न प्रतिक्षेपणीयः । खरनादेनापि समानोऽयं पाठः । "

(Vide p. 419 of *Caraka-Saṁhitā—Cikitsāsthāna*, 216-217, N. S. Press, 1941).

2. We want to know from Persian scholars the exact meaning of हिरिफ (रुफी) त्य from Persian sources earlier than A. D. 1100.

45. References to Tobacco in some Sanskrit works between A. D. 1600 and 1900*

During the last twelveyears I have published many papers on the history of Indian plants especially of medical and nutritive value. All these papers will now appear in Vol. IV of my Studies undertaken for publication by the Vedic Research Institute of Hoshiarpur. Many of the Indian plants which have enriched Indian life and culture were imported into India at different stages of India's age-long history as my papers have amply revealed. A study of the migration of plants from their native homes is as entertaining as the study of human migration. Among the American plantsthat have migrated to the other parts of the world including India the *potato* and the *tobacco* are important ones. These two plants though introduced into India about the beginning of the 17th century have influenced Indian life and culture to such an extent that manypeoplehave forgotten their foreign origin. I intended to write an elaborate paper on the history of one of these plants viz. *tobacco*. Accordingly I have collected some material especially from Indian sources. A part of this material is released in the present paper which records some references to *tobacco* in Sanskrit works composed between c. A. D. 1600 and 1900. Though *tobacco* entered India about A. D. 1600 its use and production spread rapidly tosuch an extent that India is to-day one of the three largest *tobacco*-producing countries of the world.

In the *Subhaṣitaratnabhaṇḍagara*[1] (N. S. Press, Bombay, 1911) the following seven Sanskrit verses of unknown date and authorship are recorded :—

**Annals* (B. O. R. Institute), Vol. XXXVIII, pp. 225-232.

1. The editor has recorded in foot-notes on page 104 the meanings and double meanings of someof the words in the seven verses on *tobacco* recorded by him. They are :—

Verse 1—आखुपत्रम् = आखुर्मूषिकः वाहनं यस्य
— मा = लक्ष्मीः
अज्ञानदायकं तमाखुपत्रं मा भज

Verse 3 — बिडौजाः = इन्द्र
— पद्मयोनिम् = ब्रह्मदेवम्

Verse 5 — सुपर्णेन गरुडेन सेवितः ; (पक्षे) सुष्ठुपर्णेन नागवल्ली-
दलेन सह परिसेवितः

Page 104 — तमाखुः ।

" तमाखुपत्रं राजेन्द्र भजमाज्ञानदायकम् ।
तमाखुपत्रं राजेन्द्र भजमाज्ञानदायकम् ॥ १ ॥
दारिद्र्यशीलोऽपि नरस्तमाखुं नैव मुञ्चति ।
निवारितोऽपि मार्जारस्तमाखुं नैव मुञ्चति ॥ २ ॥
बिडौजाः पुरा पृष्टवान्पद्मयोनिं
धरित्रीतले सारभूतं किमस्ति ।
चतुर्भिर्मुखैरित्यवोचद्विरिञ्चि-
स्तमाखुस्तमाखुस्तमाखुस्तमाखुः ॥ ३ ॥
न स्वादु नौषधमिदं न च वा सुगन्धि
नाक्षिप्रियं किमपि शुष्कतमाखुचूर्णम् ।
किं चाक्षिरोगजनकं च तदस्य भोगे
बीजं तृषा नहि नहि व्यसनं विनान्यत् ॥ ४ ॥
सुवर्णैर्वरिसेवितस्तदनु साधुपूगान्वितो
द्विजावनमहापटुस्तदनु सारसंधानभाक् ।
सदैव सुधयाशनं भवति यस्य विष्णोः सम-
स्तमाखुरिति सेव्यतां भवति वै यतो रागिता ॥ ५ ॥
श्रीकृष्णः पूतनायाः स्तनमलमपिबत्कालकूटेन पूर्णं
प्रस्कन्नं भूप्रदेशे किमपि च पिबतो यत्तदा तस्य वक्त्रात् ।
तस्मादेषा तमाखुः सुरवरपरमोच्छिष्टमेतत्तद्दुरापं
स्तुत्वा नत्वा मिलित्वा ह्यनिशमतिमुदा सेव्यते वैष्णवाग्र्यैः ॥ ६ ॥
भ्रातः कस्त्वं तमाखुर्गमनमिह कुतो वारिधेः पूर्वपारात्
कस्य त्वं दण्डधारो नहि तव विदितं श्रीकलेरेव राज्ञः ।

— साधूनां पूगैः संघैः अन्वितः ; (पक्षे) साधुः सम्यक्पूगः
क्रमुकः तेन अन्वितः

— द्विजाः द्विजन्मानः ब्राह्मणादयः तेषां अवनं रक्षणं
तस्मिन् महासमर्थः ; (पक्षे) द्विजाः दन्ताः

— सारं श्रेष्ठवस्तु मोक्षादि तस्य संधानं संधिं भजति
(पक्षे) सारः खदिरसारः तेन संधानं सम्यक् मेलनं भजति

— सुधया अमृतेन यस्य भोजनं भवति ; (पक्षे) सुधया
चूर्णेन सहैव यस्य भक्षणं भवति

— यतो विष्णोः अरागिता विषयेषु अप्रीतिः जायते ;
(पक्षे) यतः तमाखोः तमाखुपत्रात् रागिता
मुखरक्तिमा जायते

Verse 7 — विधात्रा, adjective of ब्रह्मणा

चातुर्वर्ण्यं विधात्रा विविधविरचितं ब्रह्मणा धर्महेतो-
रेकीकर्तुं बलात्तद्विखिलजगति रे शासनादागतोऽस्मि ॥७॥"

From the foregoing verses we learn the following details about the use of *tobacco* :—

Verse 2 — Howsoever poor a man may be, he does not leave the use of *tobacco.*

Verse 4 — "शुष्कतमाखुचूर्ण" or dried powder of the *tobacco* leaves was used for smoking and chewing.

— "सुधया भक्षणं" i. e. the chewing of *tobacco* powder mixed with *chunam* had become common.

— Reddening (रागिता) of the mouth was caused by the chewing of *tobacco* mixed with chunam (सुधा).

— The users of पर्ण (betel leaf) and the betel-nut (पूग) with सार (खदिरसार) i. e. powdered *catechu* also used to chew the *tobacco* powder in combination with these ingredients of *tāmbūla.*

Though the authorship and chronology of the verses recorded above is unknown, I have reason to believe that they were composed at a time when the use of *tobacco* had become very popular in India and all prejudices against its use even in orthodox circles were fast disappearing.

In the *Rājavyavahārakośa,* a lexicon prepared by Raghunātha Paṇḍita by the order of Shivaji the Great about A. D. 1676, many foreign words are recorded and explained. Among these words we find the following references to *tobacco* (*tamākhu*) :—

Verse 89 on p. 8 of *Rājavyavahārakośa*, Poona, 1880 —

"धूमयन्त्रं गुडगुडी तमाखुर्धूमपत्रकम् ॥"

This line records two words viz.

(1) गुडगुडी = *Hookah* for smoking.

(2) तमाखु = *tobacco* leaf used for smoking.

This reference clearly shows the currency of the *tobacco* smoking in Mahārāṣṭra about A. D. 1676. This popularity of *tobacco* in the Deccan is further vouched by other references recorded in this paper.

The use of *tobacco* in Shivaji's army had become current in the middle of the 17th century. In his order to his officers issued in A. D. 1673 he warns them against the careless smoking of *tobacco pipes*, which was likely to result in the breakout of fire destroying the fodder for horses etc. (see p. 114 of *Source-Book of Indian History* by K. S. Kini, Mangalore, 1933 — Document No. 61 taken from *Shivaji Souvenir* by G. S. Sardesai). The pertinent extract in this order reads as follows :—

"Some will take away live coal for smoking their *tobacco-pipes* with, without minding the direction in which the wind might be blowing or the grass that might have been lying about, thus causing ruinous fires unexpectedly."

Lolimbarāja, a physician of Junnar in the Poona District, lived between c. A. D. 1575 and 1625. He composed several medical works in Sanskrit, one of which is *Vaidyavatamsa* represented by a MS in the Govt. MSS library at the B. O. R. Institute, Poona (No. 601 of 1899—1915). The MS is dated Śaka 1724 = A. D. 1802. On folios 6 and 7 of this MS the following verses about तमाखु (*tobacco*) are found :—

" धूमाह्यो धूमवृक्षश्च वृहत्पत्रश्च धूसरः ।
तमाखु गुच्छफलको धूमयंत्रप्रदर्शकः ॥ ५६ ॥
बहुबीजो बहुफलो सूक्ष्मबीजश्च दीर्घकः ।
दीर्घपाटलवर्णा च पुष्पं यस्य प्रकीर्तितं ॥ ५७ ॥
तस्य पत्रं तु तीक्ष्णोष्णो कफवातहरं परं ।
श्वासकासहरं चैव कोष्ठवातहरं तथा ॥ ५८ ॥
वातानुलोमनकरं बस्तिशोधनमुत्तमं ।
दंतरुक्शमनं चैव कृमियूकादिनाशनं ॥ ५९ ॥
मदपित्तभ्रमकर् वमनं रेचनं स्मृतं ।
दृष्टिमांद्यकरं चैव क्षीणशुक्रकरं परं ॥ ६० ॥
तस्यैव धूमपानेन विशेषादृष्टिशुक्रहृत् ।
देशांतरप्रभेदेन तीक्ष्णश्चातीव पित्तलं ॥ ६१ ॥
वमनस्य प्रभावेन वृश्चिकादिविषं हरेत् ।
रचनाद्हरेद्वातं श्लेष्माणं च विनश्यति ॥ ६२ ॥
इति तमाखुनामगुणाश्च ग्रन्थांतरात्संगृहीतं ॥ "

The above seven verses do not appear to form part of the *Vaidavatamsa* of Lolimbarāja as *tobacco* had not become very popular in the Deccan during the life-time of Lolimbarāja (c.A.D. 1575—1625). This supposition is further supported by the statement of the colophon at the end of the verses viz. "ग्रंथांतरात् संगृहीतं" i.e. "gathered from another work." We have now to find out the source of these verses interpolated in a MS of the work dated A.D. 1802. In this connection the following facts may be noted:—

(1) These seven verses are found in the medical compendium *Yogaratnākara* which was composed between c.A.D. 1625 and 1750 and a MS of which is dated A.D. 1746. Very probably the copyist of the MS[1] of the *Vaidyavatamsa* dated A.D. 1802 has

1. This MS of *Vaidyavatamsa* records the properties of द्राक्षा, आम्र, आम्ररस, दाडिम, बदरीफल, नारिंग, राजादन, बकुळफल, चारोळीफल, कमरक, लकुच, क्षुद्रफल, कागदीनिंबु, चिंच, आर्द्र (आलें), आमलक, भोकरें, खर्जूर, कदलीफल, कांदा,

taken these verses from the *Yogaratnākara.*

(2) Some of the properties of *tobacco* mentioned in these verses are also mentioned in the verses about *tobacco* recorded in the work *Śāligrāmanighaṇṭu.*

(3) Whether these verses were composed by the author of the *Yogaratnākara* cannot be determined with certainty. It is, however, clear that they were composed prior to A.D. 1746, the date of one of the MSS of this work used by the editor for the edition of the work in the Ānandāśrama Sanskrit Series.

The anonymous medical compendium *Yogaratnākara* (ed. Ānandāśrama Sanskrit Series No. 4, Poona, 1900) was composed between c.A.D. 1626 and 1750 as I have shown in my paper on the date of this work published in the *Bhāratīya Vidyā* (1943) Vol. IV, No 2, pp. 154—156. One of the MSS used by the editor of this work is dated Śaka 1668 (= A.D. 1746). The following Sanskrit verses about *tobacco* are found in this compendium :—

Pages 17-18 — अथ तमाखुगुणाः ।

"धूमाख्यो धूमवृक्षश्च बृहत्पत्रश्च धूसरः ।
तमाखुर्गुन्छफलको धूमयन्त्रप्रकाशकः ॥ १ ॥
बहुबीजो बहुफलः सूक्ष्मबीजस्तु दीर्घकः ।
दीर्घं पाटलवर्णं च पुष्पं तस्य प्रकीर्तितम् ॥ २ ॥
तस्य पत्रं तु तीक्ष्णोष्णं कफवातहरं परम् ।
श्वासकासहरं चैव कोष्ठवातहरं तथा ॥ ३ ॥
वातानुलोमनकरं बस्तिशोभनमुत्तमम् ।
दन्तरुक्शमनं चैव क्रिमिकण्ड्वादिनाशनम् ॥ ४ ॥
मदपित्तभ्रमकरं वमनं रेचनं स्मृतम् ।
दृष्टिमान्द्यकरं चैव तीक्ष्णशुक्रकरं तथा ॥ ५ ॥

चाकवतचोलाची भाजी, जीवंतीशाक (खाजकुहिरी इति भाषायां महाराष्ट्रेषु) पालक, चणक, कंचुक, कर्डई घोळ, फाजी, सर्षप, घाटाणा, अगस्त्याचीं फुलें, शेवग्याचीं फुलें, मेथी, व्हानीशेप, बडीशेप, सुरण, कोथिंबीर, गाजर, लसुण, जीरें, आंबाडा, मूलक, सागरगोटे, नाह, चादवेल, डिकेमाली, तमाखू (fol. 6), भांग, गांजा, शिकेकाई, भाभूल, कोरफड, उंटकटारामुली, पडवळ कर्कोटी, वेलीवलाची शाक, वनमक्षिका, शिगाडे, काळा भोपळा, देवडागर, शदणी, कलिंगड, खरबूज, घेवडा, पनस, वांगी, भेंडा, अनानस, ब्राह्मी, पाथरी, परवरे, उंबर, साखरनिंबू, मातुलिंग, तोरणें, हरिद्रा, चाकवत, पोकळा, माठ, हिंक, देवसाळी, मुद्ग, चणक, तुरी, उडीद, कुहिरी, चवल्या, गोधूम, कुळिथ, मठ, जोनळे, सजगुरे, वांटाणे, मसूर, राळे, सावे, कोद्रव, नाचणे, वर्या, साळु, जोंडगह, पोहे, मका कणिस, साळीच्या लाह्या, ओंब्या, फुटाणे, — मांस of different animals, Milk of Cow, Camel, etc., Ghee, दधि, तक्र, नवनीत,—पेढे (पिंडिका), इक्षुरस, गूळ, शर्करा.

तस्यैव धूमपानं तु विशेषाद्धि शुक्रकृत् ।
देशान्तरप्रभेदेन तीक्ष्णं चाऽऽर्तवपित्तलम् ॥ ६ ॥
वमनस्य प्रभावेण वृश्चिकादि विषं हरेत् ।
रेचनत्वाद्‌रेचितं श्लेष्माणं च नियच्छति ॥ ७ ॥
इति धान्यादि फलकन्दशाकादि वर्गः ॥"

We get the following information about *tobacco* from the above verses :—

(1) Description of the *tobacco* plant.

(2) Its use for smoking in a Hookah (धूमयन्त्रप्रकाशकः).

(3) Its medical properties — Its use against tooth-ache, its germicidal properties (v. 4) — its use against scorpion bites (v. 7).

Panta Viṭṭhala (Viṭhoba Anna Paradkar) composed a work called *Suślokalaghava* with "*Sadbhaktiṭīkā*" in Śaka 1775 (= A.D. 1853). In the second edition of this work by K. N. Sane, 1895 we find the following reference to *tobacco* (तमाखु) :—

p. 115 — "धूम्रपत्री तमाखुरिति भाषायां । तां वर्णयति-
सुपर्णपरिशीलितो भवति साधुपूगाश्रितः
करोति सुदृढस्थितिं द्विजगणस्य साराऩ्वितः ।
सदा स्पृहयते सुधामिति बुधा गदाभृत्सम-
स्तमाखुरिति सेव्यतां न वितनोति रागं यतः । ५२२ । "

Com. सुपर्णेति । सुपर्णानि तांबूलीदलानि तैः शीलितः सेवितः । साधु पूगं पूगफलं द्विजगणस्य दंतानां दृढस्थिति दार्ढ्यं । धूम्रपत्री दंतदार्ढ्यप्रदा पित्तकरी सरा (मता ?)' इति वैद्यकात् । सारः खदिरसारः । सुधां चूर्णं । अन्यत्र (गदाभृत्पक्षे) सुपर्णो गरुडः । साधूनां सनकादीनां पूगः समूहः । द्विजानां स्थिति पालनं । सारं अराभिः सहितं चक्रं । सुधा अमृतं । एवं गदाभृता विष्णुना समश्चेत्सर्वदा सेव्यः किम । यतः । रागं रक्तिमानं, स्नेहं च । विष्णुस्तु वैराग्यं तनोतीति भेदः ॥ ५२२ ॥"

Vaidya Bapalal G. Shah in his *Nighaṇṭu Adarśa* (Vegetable Materia Medica) Part II (1928) devotes pp. 159-163 to *Tobacco* and records the following Sanskrit verses about *tobacco* :—

Page 159 — " तमाखुः पित्तलस्तीक्ष्णश्चोष्णो वस्तिविशोधनः ।
मदकृद्भ्रमकृत्तिक्तो दृष्टिमान्द्यकरः सरः ॥
वामकः कटुको रूक्षो वातस्यानुविलोमकः ।
कफकासश्वासकोष्ठवातकृमीञ्जयेत् ॥

दन्तशुकदष्टिरुजो लिहायूकादिकान् गदान् ।
वृश्चिकादिविषं शोथं नाशयेदिति कीर्तितम् ॥"

— शालिग्रामनिघण्टु

— "वज्रभृङ्गी तु कट्वुष्णा चोष्णा श्वासरुजापहा ।
हिक्का कफं कंठरोग वातं गुल्मं च पीनसम् ॥
प्लीहां जंतूश्रामशूलमुदरस्थं रुजं जयेत् ।"

— निघण्टुरत्नाकर[1]

Page 160 — "कलञ्जसंयेष्टनधूमपानात्
स्याद्दन्तशुद्धिर्मुखरोगहानिः ।
कफप्रमामज्वरहानिकृन्च
गान्धर्वविद्याप्रवर्यैकसेव्यम् ॥" — विष्णुसिद्धान्तसारावली

Raghunātha Indraji alias Katnbhat in his *Nighanṭa-Samgraha* (Junagad, 1893) records the following verses about *Tobacco* :—

Page 594 — अथ तमाकुनो नामगुण ४८६
"वज्रभृङ्गीदारपत्रा कृमिघ्नो ताम्रकूटका ॥

— निघण्टुरत्नाकर

॥ गुणाः ॥ 1. तमाखुः पित्तलस्तीक्ष्णश्चोष्णो बस्तिविशोधनः ।
2. मदकृद्भ्रामकस्तिक्तो दृष्टिमांद्यकरः सरः ॥
3. वामकः कटुको रुच्यो वातस्यानुविलोमकः ।
4. कफकासश्वासवातकोष्ठवातकृमीञ्जयेत् ॥
5. दन्तशुकदष्टिरुजो लीहायूकादिकान् गदान् ।
6. वृश्चिकादिविषं शोथं नाशयेदिति कीर्तितः ॥

— निघंटुरत्नाकर प. २३२

7. वज्रभृङ्गी तु कट्ष्णुका चोष्णाश्वासरुजापहा ।
8. हिक्कां कफं कंठरोगं वातं गुल्मं च पीनसं
9. प्लीहां जंतूश्रामशूलमुदरस्थं रुजं जयेत् ।"

— निघंटुरत्नाकर प. १७७"

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1. Possiblythis work is identical with निघण्टुरत्नाकर published atBombay in 1868.

Lines 1-6 in the above extract are quoted by Bapalal Shah in his *Nighaṇṭu Adarśa*, Part II, p. 159. The source of these lines is *Śāligrāmanighaṇṭu* according to Bapalal. Lines 7-9 are also quoted by Bapalal and their source is mentioned as *Nighaṇṭuratnākara*. Katābhaṭ also mentions this source for these three lines.

The tendency of Indian medical works was towardsincorporating new plants into them and mentioning their properties as will be seen from the extracts about *tobacco* recorded from these works in this paper. I shall feel thankful if any readers of this paper point out to me any more references to *tobacco* in Sanskrit sources than what I have discovered and recorded above.

46. References to Tobacco in Marathi Literature and Records between A. D. 1600 and 1900*

Owing to my interest in the history of Indian plants, I have published more than twenty papers[1] on their history. No correct history of Indian plant-lore can be written unless the history of every Indian plant is reconstructed and recorded. Among the plants of medical and nutritive value there are many plants, which have migrated to India from different and distant parts of the globe like America. *Tobacco*, an American plant, migrated to Europe in the middle of the sixteenth century and thence to India about A. D. 1600. The history of this migration as reflected in the regional literature of India ought to be reconstructed. I am struggling in this direction and have collected some material which though scanty would be useful to other scholars interested in this subject. Accordingly I have sent for publication in the *Dr. Jadunath Sarkar Volume*[2] to be published by the University of Panjab, a paper on *"Some references to Tobacco in Sanskrit Works between A. D. 1600 and 1900."* In the present paper I have put together some references to *tobacco* in Marathi records and literature for the above period (A. D. 1600 — 1900) Many more such references can be found by students of Marathi sources. I have, therefore, to request such students to record them with a view to supplementing my references. In particular I would like to know any references to *tobacco* in Marathi sources prior to A. D. 1600.

Some of the published Marathi documents contain references to *tobacco* and the duties imposed on its export and import into and from the Maratha country as will be seen from the following evidence kindly supplied to me by my friend Shri V. S. BENDRE :—

(1) *Sources of Maratha History* by V. K. RAJAWADE, Khaṇḍa 20, pp. 108-109—Document dated *12th December 1695* refers to duty on

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* *Poona Orientalist*, Vol. XX, p. 20-21.

1. All my papers on the history of Indian plants are reprinted in the present volume of my *Studies in Indian Cultural History*.

2. This has since been published in 2 Parts, Price Rs. 50/-.

तंबाखू, cloth etc. (This volume was published by the B. I. S. Mandal, Poona, in 1915).

(2) आंगरेकालीन पत्रव्यवहार (*B. I. S. Mandal Quarterly*, Vol. XXVIII, Nos. 3 and 4. Jan.—April 1948, pp. 70-71). Document No. 81 dated *13th August 1773* refers to तंबाखू.

(3) Ibid, pp. 15-16—Document No. 10 dated *about A. D. 1730* or a little earlier - Reference to the Portuguese conversion of Hindus to Christianity—Reference to तंबाखू.

(4) शिवचरित्र-साहित्य *Khaṇḍa 10*, Sources of the History of Konkan, B. I. S. Mandal Series No. 86, pp. 8—15—Document No. 6 (*17th Century*) contains a long statement of various goods exported from and imported into Peṇ in the Kolaba Dist., and the duties imposed on them—Reference to duty on तंबाखू.

(5) Ibid, *Khaṇḍa 5 (1942)* B. I. S. Mandal Series No. 55; p. 15—Document *No. 771 (about A. D. 1650)*—Reference to duty on तंबाखू.

(6) Ibid, pp. 157-161, Document No. 919 —Rates of duty on तंबाखू are given.

(7) —Ibid—*Khaṇḍa* 7, B. I. S. Mandal Series No. 50—Document No. 54 dated *15th February 1671*—References to तंबाखू (pages 84, 89).

(8) —Ibid—p. 106—Document No. 65 dated *16th January 1683*—References to तंबाखू and revenue charges on its crops in the Poona Paragaṇā.

(9) —Ibid—p. 117 and 121. Document No. 66 dated *A. D. 1689*—Reference to revenue charges on तमाखू and रताळे crops.

(10) —Ibid—*Khaṇḍa III*—B. I. S. Mandal Series No. 24, pp. 106-126—Document No. 498—dated *8th April 1693*—Reference to duty on *tobacco* (तंबाखू).

(11) In the work called पुस्तक मेस्तक or मेस्तकपरिभाषा published by the historian V. K. RAJAWADE in the *B. I. S. Mandal Ahavāl*, 1912, pages 28-56) we find a reference to the cultivation of the *tobacco* crop in the Deccan in the following lines :—

Page 39 — "तमाखू आणि अफीन । हे हो जिनस गहन ।
सामाहोमाजि प्रजानन । विशेष पिकवितो ॥ ३७ ॥"

Tobacco and *opium* are mentioned as being produced by the people twice a year The MS of this work used by RAJAWADE is dated *Śaka 1667* (= A. D. 1745) but the work itself belongs to the time of King Rājārām (A. D. 1670—1700) according to RAJAWADE (p. 27). In the Proceedings of the B. I. S. Mandal for Śaka 1833 (A. D. 1911) RAJAWADE

has published another मेस्तक (pp. 131-41). *Tobacco* (तंबाखू) and opium (*Aphin*) are also mentioned in this work (p. 132).

The Maratha King Shahu, who was brought up at the Mogul Court in his early life, was in the habit of smoking *tobacco* of two kinds viz (1) *Surati* (obtained from Surat) and (2) *Bagdadi* (obtained from Baghdad). In a list of articles ordered by him from the English through Kanhoji Angria on *3rd August 1715* we find "तमाखू सुरती" and "तमाखू बगदादी" (See Document No. 53 in Vol. 8 of the *Peshwa Daftar* p. 38, Bombay, 1931).

In a document dated *21st December 1741* in the *Selections from Vaidya Daftar, Khaṇḍa 3*, p. 50 (B. I. S. Mandal, Poona) there is a reference to "तमाखूगुल." Possibly "गुल" in this reference means the charcoal ball used in a *Hukka*. The Editor explains "गुल" as "गुलफाडी" or a match to light the Hooka or a Cigar.

The Marathi poet Madhva Muniśvara refers to *tobacco* and smoking accessories in his songs. His poems have been edited by P. V. GUBBI (मध्वमुनीश्वरांची कविता, B. I. S. Mandal, Poona, 1933). GUBBI says that he died in *Śaka 1653*=*A. D. 1731* (p. 17 of his *Caritra* at the beginning of the volume). According to Shri V. S. BENDRE this poet is later than saint Tukārāma and before *17th December 1733*, the date of his death. I note below some references to *tobacco* in the above edition of his poems :—

Page 2 — "जोगी जंगम सेवडे म्हणति ते आम्हांत यावें सुखें ।
आफू भांग तमाखु सेवितो तया तें तत्व बोध सुखें ॥"

These lines mention the use of आफू (opium) भांग[1] (hemp) and तमाखु (*tobacco*) current before *A. D. 1733* among the *Jogis* and *Jaṅgamas* etc. of Mahārāṣṭra.

Page 146 — *Abhaṅga* No. 499

"गुडगुडीचें पाणी नव्हे मंदाकिनी ।
जीर मेरुचरुनि उतरलें ॥६॥
अपवित्र गांजा तंबाखूचा धूम ।
धूम्रारतीसम लेखू नये ॥७॥"

These lines refer to गुडगुडी (Hukka) and the smoke of गांजा (hemp) and तंबाखू (tobacco) which was regarded as अपवित्र (unholy) in religious circles

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1. See article on *BHANG* in *Hobson Jobson* by YULE and BURNELL, London, 1903, p. 59. References to *Bhang* from *A. D. 1563* (Garcia, f. 26) onwards are recorded in this article. About आफू (*opium*) see article on *Opium* (p. 641) where references to *opium* from c. A. D 70 are recorded.

Page 130 — No. 445 (*Śloka*)

"तो देतसे हिंग जिरें सुपारी ।
पानें तमाखु जरदा चफारी
... ... ॥४॥ "

The above lines refer to तमाखू (tobacco) and जरदा[1] (tobacco used for chewing). The adjective चफारी applied to जरदा indicates a special variety of it. I have not been able to know exactly the meaning of this adjective.

The reference to *Jarada*[2] used for chewing is important as it shows that the use of *tobacco* for chewing purposes had become current in the Mahārāṣṭra long prior to the date of the death of Mādhva Munīśvara viz. *A. D. 1733*. Very probably smoking and chewing of *tobacco* had become current in the Deccan simultaneously in the 17th century.

Page 155 — No. 528 (*pada*) refers to the following articles :—

(1) तमाखू — tobacco.

(2) चंची — A wallet used for keeping betel nut, betel leaves, nutcracker, tobacco etc.

(3) बटवा — A pouch for holding *tobacco* etc.

(4) गाडगें — An earthen vessel for keeping *Chunam* used with betel or *tobacco* for chewing purposes.

(5) फडकें — A small piece of cloth used for being fixed at one end of the *tobacco* pipe through which the smoke is inhaled by the mouth.

(6) कोयींत चुना — *Chunam* kept in a कोय (a mango stone of which the interior is cleaned and made hollow for admitting the *Chunam* through a small hole). Metallic receptacles of the size of a mango stone for holding *Chunam* were also current as they were more durable.

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1. The name जरदा means "of a yellow or tawny colour" in Persian. In the *Rajavyavahārakośa* of Raghunātha Paṇḍita (c. A. D. 1676) several kinds of horses and their name are recorded in the *Caturaṅgavarga*, verses 164—168 (Poona Edition, 1880). In verse 165 a tawny-coloured horse is mentioned as "जरदा" ("जरदा पिङ्गलः स्मृतः"). The *tobacco* used for chewing today is also of this tawny or yellowish colour.

2. References to the chewing of tobacco are rare. Two years ago Dr. KHANOLKAR, the Director of the Cancer Research Institute, Bombay, inquired about such references personally. I could not then give him any reference to *Jarada*, which I discovered later and reported to him.

Thomas BOWREY in his *Account of Countries round the Bay of Bengal* (A. D. 1669 to 1679), London, 1905, p. 303, refers to the chewing of tobacco, a habit then current in India and South Sea Islands. At Achin city in the north of Sumatra he was honoured with "*Betele Arecca to eat and tobacco to chew, a custom used all India and south seas over.*"

Page 156 — No. 529 (*Pada*) refers to the following articles :—

(1) गुर्गुडी — Hukka

(2) चिलीम — An earthen *tobacco* pipe

(3) तंबाखू — *tobacco*

Page 94 — No. 325 (*Pada*) refers to the use of the betel after dinner :—

" खाउनि जेवुनी विड्या सेवुनी
पानसुपारी लवंगारे ।
मुललो शृंगारादि सेवुनि अंगनेच्या रंगा रे ॥ २५ ॥ "

In this stanza the word विड्या possibly means small betel-leaf rolls with betel etc. At present विडी means a cigarette and विडा means a *tambula* (betel, betel-leaf with catechu, chunam etc.). In the present stanza the uses of विड्या and पानसुपारी (betel-leaf and betel-nut) are separately mentioned. It may be possible to interpret विड्या as small country cigarettes which people smoke while chewing पान (leaf) and सुपारी (betel-nut bits).

My friend Shri V. S. BENDRE has kindly supplied to me a very interestingextract about the condemnation of the habit of smoking *tobacco* by a Marathi religious Muslim poet of the 17th century. According to Shri BENDRE this poet of the name SHAIKH MAHOMAD flourished between A D. 1570 and 1655 at Shrigonde village of the Ahmadnagar Distt., of the Bombay State. He composed a work called the योगसंग्राम (*Yoga-Sangrama*) which was completed on *28th July, 1645*[1]. In *Prasanga 16* of this work we find the following vigorous condemnation of the use of *tobacco* which was pervading in all ranks of the society in the Maharastra in the 17th century : –

1. The Colophon of the *Yogasangrama* recording the date reads as follows :—

" पार्थिव नाम संवत्सर — शुद्ध पूर्णिमा सोमवार । गुरु ग्रहणपूर्ण होतें ॥ ३१८ ॥ शुद्ध श्रावणमास पाडवा अधिक पहिल्या सोमवाराचो ठेवा...... ॥ ३१९ ॥ सुमुहूर्तामधील प्रातःकाल । चढती रविचंद्राची प्रकाशकळा...... ॥ ३२० ॥ संपूर्ण ग्रंथाची अवस्था । ऐका पूर्णिमेस केली पूर्णता । शरण शेख महमद बळा । सद्गुरुचरणी ॥ ३२१ ॥ ते दिवशी ग्रंथ संपला" = *28th July* 1645 according to Shri BENDRE.

[In the *Madhyayugina Caritrakosa* by S. CHITRAV, Poona. 1937, pp. 782-783 there is an article on *Shaikh Mahomad*. His works recorded in this article are :— (1) योगसंग्राम (A. D. 1696) (२) निष्कलंकबोध, (३) ज्ञानसागर, and (४) पवनविजय. This article is based on the information about this poet in महाराष्ट्र-कविचरित्र, Vol. I. pp 236-248. The date A. D. 169 6 for the *Yogasangrama* recorded hereconflicts with Shri BENDRE's date for the work viz. A. D. 1645 (28th July)].

प्रसंग १६ वा—

" शहाणे चतुर गुणी भले । योगी ब्राह्मण म्हणविती चांगले । मुक्तोफो कलंदर नानावेष धरिले । रक्षा लावूनियां ॥ १६ ॥

या वेगळे राजश्री दंभधारी । कुशाऊ म्हणविती परोपरी । अनंत केले म्हणवूं नेदी मिरवी थोरी । अविचार करूनियां ॥ १७ ॥

ऐसें सांगावया काय कारण । सूक्ष्म जीवांनीं कोंदलें मद्भुवन । त्याचें कार्याविण करिती दहन । तमाखुचे आवडी ॥ १८ ॥

एक नगर बुडवित्याची हिंसा । एका चिलमीने घडे ऐसा । सांगेन तो भाव परियेसा । समस्त हो तुम्ही ॥ १६ ॥

जेव्हां मुरका ओढिती आवडी । तेव्हां मुरथोंडोन पडती लक्ष कोडी । मागुता जेव्हां धूर उछ्वासें सोडी । तेव्हां अनंत प्रलय ॥ २० ॥

तैसे घा-यावाटे अणु उडती । त्याहून कोंदले असंख्याती । अणूच्या लक्ष काट्यानें सूक्ष्म असती । दिसाळें कोंदलीं ॥२१॥

लखलखाट वोळला जनी विजनीं । हें व्यास श्रुत तो ब्रह्मज्ञानी । येर उदंड कथितां कथनीं । मेले मरतील ॥२२॥

विप्र महा आचारें तळमळी । म्हणे संकटाहून उंच माझी कुळी । मुखांत घाली गुडगुडीची नळी । हीना इतरांची ॥२३॥

या वेगळे घडतीं अनेक अनाचार । येरून येरांच्या मुखावरि उच्छिष्ट धूर । सोडिती परि नेणती विचार । परमार्थबुद्धीचे ॥२४॥

श्वासें ओढून धूर कुंभक । उच्छ्वासें सोडिती बाहेर फुंक । सिंके अंतरीं जाय न नेणत विवेक । उच्छिष्टाचा पैं ॥२५॥

विप्र शुद्ध मळिवौंश अनेक याती । एके गुडगुडीसी स्पर्श करिती । आम्हांस द्या म्हणवून नारी मागती । एका भ्रताराच्या असतां ॥२६॥

येके नळीस बहुतां भ्रतारांचें चुंबन । गरती म्हणवून लाविती वदन । परद्वार घडलें ते नेणती खूण । नारिजन्मा येऊनियां ॥२७॥

सुंदर मनुष्यासारिखें वदन । त्यांत धूम्र घालणें कवण कारण । परमात्म्याचें उच्चारण । अभागी न करिती ॥२८॥

कोरड्याच चघळितां अस्थि । श्वान न होयच तृप्ति । तैसे जन विषयांचे संगती । तमाखू ओढीत असे ॥२६॥

उदरांत कळमळीन येते घेरी । दुर्गंध उठे मुखामितरीं । नेत्र मंद होती अविचारी । कंदर्प नासोनियां ॥३०॥

कोणही विषय लाभिक नाहीं । द्रव्य वेंचून सकलें पाही । मानापमाना नसोनी कांहीं । आदर न पाहाती ॥३१॥

हें बोलिलों परमार्थवचन । हित होईल तें आचरा आचरण। शेख महंमद करसंपुट ओडोन । ओत्यांस विनविती ॥३२॥"

From the above extract of 32 stanzas we get the following information about the use of *tobacco* in the 17th century in the Mahārāṣṭra :—

(1) The habit of smoking *tobacco* had become current in all ranks of society.

(2) The use of *tobacco* was not confined only to men but to women also (Stanza 26).

(3) The evil effects of *tobacco* are noted by Shaikh Mahomad (st. 30).

(4) *Tobacco* was not viewed with favour in religious circles to which Shaikh Mahomad belonged.

(5) Shaikh Mahomad condemns vigorously the habit of smoking *tobacco* and exhorts people to adopt a spiritual mode of life.

(6) The above extract contains references to —

(i) तमाखु — tobacco
(ii) गुडगुडी — Hookah
(iii) चिलमी — (Earthen) *tobacco* pipe.

(7) The same *Hookah* or *tobacco* pipe was used by men and women of different castes without any sense of cleanliness. Even the Brahmins[1] were addicted to its use.

The Maratha saint Tukārāma (A. D. 1608—1650 March) also condemns the use of *tobacco* in the following extract :—

"ऐसे संत झाले कळीं । तोंडी तमाखूची नळी ॥१॥
स्नान संध्या बुडविली । पुढें भांग वोढविली ॥२॥
भांगभुर्का हें साधन । पची पडे मद्यपान ॥३॥
तुका म्हणे अवघे सोंग । तेथें कैचा पांडुरंग ॥४॥ "

(See *Tukārāma Gātha* published by Bombay Govt. Abhaṅga No. 2857).

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1. Shri BENDRE has sent me the following extract about the use of *tobacco* among Brahmins condemned by Shaikh Mahomad :—

"तमाखूचा धूर द्दतराचा घोंगड ।
द्विज घोडो लाळ । मुरका मागे ॥ १ ॥"

(See शेख महंमद मठ संग्रह — शेख महंमद काव्यसंग्रह, वही नं. १, क. ४)

St. Tukarama condemns the use of *tobacco*, *bhang* (hemp) and the drinking habit (*madyapana*) in the above song.

In the *Caturtha-Sammelan-Vrtta* (Śaka 1838 = 1916) of the Bhārata-Itihasa-Samshodhak Mandal, Poona, the Maratha Historian V. K. RAJAWADE has published an article on "*Damaji Panta and Vithya Mahar* (pp. 53-67) In this article RAJAWADE reproduces a Marathi document (*Mahajar*) about which we are told that the original document was written during the days of Bedar empire. The document was revised in Hijari era 1051 = *Śaka 1563* = A. D. 1641. The document reproduced by RAJAWADE is a copy of the revised copy of A. D. 1641. This second copy of the original with its revision was made about 100 years before 1916 i. e. *about* A. D. 1816. At the end of this copy there is reference to ELPHINSTONE (आलफिस्टण) at Poona. This copy mentions some products and crops of the Maratha country as follows :—

Page 58—(1) गहू—Wheat
(2) हरभरे—Gram (Cicer)
(3) लसून—Garlic
(4) आले—Ginger
(5) वधा
(6) नागली
(7) मिरच्या—Chillies
(8) मुग
(9) काहारले
(10) हुंब्या
(11) खपल गहू
(12) जोरी—Jawar (Sorghum)
(13) हळद—Turmeric
(14) तांदूल—Rice
(15) वन्हे
(16) सातु
(17) लाख
(18) जवस
(19) करडी
(20) तंबाखू—**Tobacco** (p. 59)
(21) सुपारी—Betel-nuts (p. 59)
(22) पाणे—Betel-leaves (p. 59)
(23) तीळ—Sesamum
(24) सावे
(25) राळे
(26) वरया
(27) कापूस—Cotton
(28) बाजरी
(29) शेंगा भुंईमुगाचे—Ground nuts
Page 60—(30) आंब
(31) नारेळ—Coconuts
(32) केळे—Plantains
Page 61—(33) गूळ
(34) काकवी
(35) हरडा

We specially note in the above list the mention of *Tobacco* (No. 20) and *Chillies* (No. 7) introduced into India after about A. D. 1550. The reference to *Ground-nuts* (No. 29) is also important. The *Ground-nuts* (भुइमुगाच्या शेंगा) are also referred to in a document of A. D. 1813 (see p. 155 of (पेशवाईच्या सावलीत by N. G. CHAPEKAR, Poona, 1937).

My friend Shri V. S. BENDRE has drawn my attention to the following references to *tobacco* in Marathi records :—

Expenditure on the articles and *tobacco* etc., supplied to Samsher Bahadar (लेखांक No. 52—स ग. जोशीसंग्रह—p. 34 of B. I. S. M. Quarterly Poona, Vol. 35, Nos. 1-2--April-July 1954—B. I. S. Mandal, *Svīya Granthamālā* No. 67) mentions the following items :—

23rd May 1759 — "गुडगुडीची नेच्याची तोटी "

25th August 1759 — " गुलाबपाणी " rose-water
" गुडाकू " —*tobacco*

24th October 1759 — " चिलीम " —earthen tobacco-pipe
— " हुक्का —tobacco-pipe

15th November 1759 — तमाखू (tobacco) for Madansing

Samsher Bahadar (A. D. 1734-1761) was the illegitimate son of Peshwa Bajirao I. His mother was *Mastānī*, the Muslim mistress of this Peshwa. Madansing was the illegitimate son of the Maratha King Sambhaji, the son of Shivaji the Great. He was in confinement for 30 years with the Moghul emperor. He was released on *23rd February 1719* (See pages 795 and 597 of the *Madhyayugīna Caritra Kośa* by S. CHITRAVA SASTRI, Poona, 1937).

It appears from the foregoing references that the use of *tobacco* had become current in royal circles during the Peshwa period.

47. A Reference to Tobacco in the Poems of Senā Nhāvı and its Bearing on his Date (Later Than c. A. D 1550)*

Recently I published two papers[1] on the history of *Tobacco* in India and outside. One of these papers records references to *Tobacco* in Marathi literature and documents. All these references are later than A. D. 1600. No references to *Tobacco* earlier than c. A. D. 1590 have yet been found by me. I have been asking for such references from scholars who have closely studied Marathi records and literature. One of these scholars, Shri. V. S. Bendre who has already helped me in my present inquiry, reported to me the following reference to *Tobacco* from the *Gathas* of the Mahārāṣṭra Saint, SENĀ NHĀVĪ :—

Gatha No. 42 on pp. 161—162 of *Gathapañcaka*, edited by Tryambak Hari Avate, Poona, Śaka 1831 (A. D. 1909)

" ४२. वैसोनि कीर्तनांत । गोष्टी सांगतो निश्चित ॥१॥
दुष्ट अधम तो खरा । येथुनियां दूर करा ॥२॥
तमाखू ओढुनि सोडी धूर । दुष्ट बुद्धि दुराचार ॥३॥
पान खाय कीर्तनांत । रुधिर विटाळशीचें पीत ॥४॥
त्याची संगति जयास । सेना म्हणे नर्कवास ॥५॥"

In the above song Senā Nhāvī condemns the smoking of तमाखू (*Tobacco*) and the chewing of betel leaf (पान) at devotional meetings. This condemnation is similar to that by another Mahārāṣṭra Saint Shaikh Mahomad in his work, "*Yogasaṅgrāma*" (c. A. D 1645) as also that by Saint Tukārāma (A. D. 1608-1649). Now let us record the views of Marathi scholars about the date of *Senā Nhāvī*.

(1) Shri S. Chitrav Shastri in his *Madhyayugīna Caritrakośa* (Poona, 1937), p. 814, gives some information about Senā, according to which his date is "*about A. D. 1448.*" As *tobacco* was introduced into India about A. D. 1600 Senā's reference to *tobacco* in the extract quoted above would lead us to conclude that his date is later than c. A. D. 1575 and consequently the date recorded by Shri Chitrav viz. "*c. A. D. 1448*"

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* *Poona Orientalist*, Vol. XXII, Nos. 1-2, pp. 37-39.

1. (i) "References to Tobacco in Marathi Literature and Records between A.D. 1600 and 1900" *Poona Orientalist*, Vol. XX, pp. 20-30 and (ii) "The History of Tobacco in India and Europe-between A.D. 1500 and 1900"—*Bharatīya Vidya*, Vol. XVI, No. 1, pp. 65-74.

will have to be rejected. If, however, we regard "*c. A. D. 1448*" as the correct date for Senā we are constrained to regard his reference to *tobacco* as spurious. I have, therefore, to request Marathi scholars to give their decision on this point after proper evaluation of the data now existing for fixing Senā's date.

(2) Prof. S. G. Tulpule has made some remarks on Senā Nhāvī in his Supplement to the 4th edition [1951] of the *Mahārāṣṭra Sārasvata* by V. L. Bhave [pp. 912-913]. The following points from these remarks may be noted here :—

(i) *Senā* belongs to the group of saint poets to which Jñāneśvara belongs.

(ii) He was a barber by caste and was in the service of a king of Bandogad near Jabalpur.

(iii) His mother-tongue was Hindi but being a devotee of god Viṭhobā of Pandharpur he knew Marathi very well.

(iv) There are many followers of Senā in Northern India from Panjab to Rajputana.

(v) The "*Granth Sāheb*" of the Sikhs contains a song of Senā.

(vi) According to Shri S. P. Joshi (pp. 25-26 of his book "पंजाबातील नामदेव") Senā did not originally belong to Mahārāṣṭra. It is however, surprising that all the extant poems of Senā (about 150 *abhangas*) are in Marathi.

(vii) He died on "*Śrāvaṇa vadya dvādaśī*" but the year to which this *tithi* belongs is not known.

(viii) According to Shri S. P. Joshi and Shri V. L. Bhave Senā's date is not as old as Jñāneśvara but he is somewhat later.

It will be seen from the views regarding Senā's date quoted above that no sure criterion has been found by Marathi scholars for fixing his date even within reasonable limits. Under these circumstances the reference to *Tobacco* in Senā's poems recorded in this note, if genuine, would enable us to conclude that he is later than c. A.D. 1550. This view would confirm the views expressed by Shri Joshi and Shri Bhave that Senā is somewhat later than Jñāneśvara (13th Century, though they don't give us the exact later terminus to Senā's date).

48. The History of Tobacco in India and Europe Between A. D. 1500 and 1800*

No complete history of Tobacco in India has been published so far. I have collected some references about this history during the last fifteen years. Though my search for these references is not yet complete, I have thought it advisable to publish the references so far collected with a view to clarifying my investigation to some extent.

In the *Encyclopædia Britannica* (14th Edition, 1929) Vol. 22 we find only the following note on the history of Tobacco :—

Page 260 —

"*Historical* :—The tobacco plant was brought to Europe in 1558 by Francisco Fernandes, who had been sent by Philip II of Spain to investigate the products of Mexico Jean Nicot, the French Ambassador to Portugal sent seeds of the plant to the Queen, Catherine de' Medici. The services rendered by Nicot in spreading a knowledge of the herb have been commemorated in the scientific name of the genus Nicotiana. At first almost miraculous healing powers were attributed to the plant, and it was designated "*herba panacea*", "*herba santa*", *Sana Sancta Indorum*. "Divine tobacco" it is called by Spencer, and "our holy herb nicotian" by William Lilly.

While the plant came to Europe through Spain, its use for smoking purposes spread to the continent from England. Ralph Lane, the first Governor of Virginia, and Sir Francis Drake, brought to the notice of Sir Walter Raleigh the habit of smoking tobacco. Lane is credited with having been the first English smoker and through the influence and example of the illustrious Raleigh "Who took a pipe of tobacco a little before he went to the scaffold" the habit became rooted among Elizabethan countries. During the 17th century the indulgence in tobacco spread with marvellous rapidity through all nations." In the article on *Tobacco* in the *Hobson-Jobson* (by Yule and Burnell, London, 1903) we get the following information about *Tobacco* in general and about its introduction into India and the East :—

Pages 924-926 —

c. A. D. 1550 —

Tobacco is mentioned in Burton's *Arabian Nights*, vii, 210 along with meat and vegetables but this is the insertion of

* *BharatIyaVidya*, Vol. XVI, No. 1, pp.65-74.

some scribe according to the editors of the Hobson-Jobson.

1542-1556 —

Girolamo Benzoni in his *Travels* (translated by W. H. Smyth, Hak Soc. 1857, p. 81) states : —

"going through the provinces of Guatemala and Nicarague I have entered the house of an Indian, who had taken this herb (*tobacco*), which in the Mexican language is called *tobacco* and immediately perceived the sharp fetid smell of this truly diabolical and stinking smoke, I was obliged to go away in haste and seek some otherplace"

J. T. Platt in his *Dictionary of Urdu, Classical Hindi and English*, London, 1884 states :— "The word *tobacco* is from the language of Hayty and meant first the pipe, secondly the plant, thirdly the sleep which followed its use"

1558 —

Tabaccam and *Tabaccane* mentioned (*Gul. Camdeni, Annal. Rerum. Anglicanum, regn. Elizabetha*, ed. 1717, ii, 449)

1592 —

"divine *Tobacco*"

— *The Faerie Queene*, III, v. 32

1597 —

Earl of Essex at Villa Franca uses *tobacco* — *Commentaries of Sir Francis Vere*, p. 62

1598 —

"this roguish *tobacco* ... ... four died ... ... with taking of it ... ... its little better than rats-bane or rosaker"

— *Every man in his humour*, iii, 2.

1604 —

"now Impost of 6s. 8d., and the custom of 2d. per pound on *tobacco*"

— *Calendar of State Papers, Domestic*, James I, p. 159.

1604-1605 —

Visit of Asad Beg (Akbar's Ambassador) to the Bijapur Court. Asad Beg states :— "In Bijapur I had found some *tobacco*. Never having seen the like in India, I brought some with me and prepared a handsome pipe

of jewel work. His Majesty (Akbar) was enjoying himself after receiving my presents, and asking me how I had collected so many strange things in so short a time. When his eye fell upon the tray with the pipe and its appurtenances he expressed great surprise and examined the *tobacco*, which was made up in pipefuls; he inquired what it was and where I got it. The Nawab Khān-i-'Azam replied: 'This is *tobacco*, which is *well-known* in *Mecca* and *Medina*, and this doctor has brought it as a medicine for your Majesty.' His Majesty looked at it and ordered me to prepare and take him a pipe-ful. He began to smoke it, when his physician approached and forbade his doing so" ...... (omitting much that is curious). "As I had brought a large supply of *tobacco* and pipes I sent some to several of the nobles, while others sent to ask for some; indeed all, without exception, wanted some, and the practice was introduced. After that the merchants began to sell it, so *the custom of smoking spread rapidly*."

— *Asad Beg* in *Elliot*, vi. 165-167.

1610 —

"The *Turks*......also delight in *tobacco*, they take it through reeds that have joyned unto them great heads of wood to containe it. I doubt not but lately taught them, by the English :...... *no question but it would prove a principall commodity*. Nevertheless they will take it in corners, and are so ignorant therein, that that which in England is not saleable, doth passe here amongst them for most excellent."

— *Sandys, Journey, 66.*

1615 —

"*tabacco*"

— *P. della Valle*, i. 76.

1616 —

"miraculous omnipotence of our strong tasted *Tobacco*" (virtues of *tobacco* described)

— *K. James I., Counterblast to Tobacco* in *Works*, pp. 219-220

1617 —

"As the smoking of *tobaccò* (*tambakū*) had taken very bad effect upon the health and mind of many persons, I ordered that no one should practice the habit. My brother Shāh Abbās, also being aware of its evil effects had issued a

command against the use of it in Irān. But Khān-i-'Alam was so much addicted to smoking, that he could not abstain from it, and often smoked."

—*Memoirs of Jahāngīr* in *Elliot* V. 851 (*Blochman* renders this passage *Indian Anti.* i, 164.)

1623 —

"Tobacco" —*Bacon H. Vitae et Mortis* in *B.* Montague's ed. X, 189.

17th Century —

long extract from a Persian author. Some points in this extract are worthy of noting :—

(1) *Tobacco*, "an European plant".
(2) Its cultivation became speedily universal.
(3) It "rewarded the cultivator far beyond every other article of husbandry."
(4) Smoking of *tobacco* pervaded all ranks and classes during the reign of Shah Jahan (A.D. 1628-1658). *Tobacco* was often preferred over other necessaries of life.
(5) References to "*Chillum*" and "*Hookah*."

c. 1760 —

"*Tambakū.* It is known from the *Maāsir-i-Rahīmī* that the *tobacco* came from Europe to the Dakhin, and from the Dakhin to Upper India during the reign of Akbar Shāh (1556-1605), since which time it has been in general use".

— *Bahār-i-'Ajam* quoted by *Blochmann* in *Ind. Anti.* i, 164.

1878 —

"It appears from Miss Bird's *Japan* that *tobacco* was not cultivated in the country till 1605. In 1612 and 1615 the Shogun prohibited both culture and use of *tabako*" — See the work, i, 276-77 [According to Mr. Chamberlain (*Things Japanese*, 3rd ed. p. 402) by 1651 the law was so far relaxed that smoking was permitted, but only out-of-door].

John Fryer in his *Travels* (A.D. 1672-1681) in East India and Persia (Hak. Society, London, 1909, Vol. I) refers to *tobacco* in the following extracts :—

Vol. I, p.43 —

Speaking of the Island of St. Iago, one of the Cape Verde Islands Fryer states :—

"They invite us with an Hubble-bubble (hookah) (so called from the noise it makes) a long reed as brown as a Nut with use, inserted the body of a Cocoe-shell filled with water, and a nasty Bole just pressing the water, they ram *Tobacco* into it uncut, out of which we may suck as long as we please etc."

Vol. I, p. 110 — Speaking of the town of "Maderas" Fryer observes :—

The natives chew it (betel leaf with *Chinam* (Chunam) and *Arach* (areca-nut)...... If swallowed it inebriates as much as *tobacco*"

Vol. I, p. 88— Speaking of the *Moors* in India Fryer remarks :—

"Their Chiefest Delight and Pride is to be seen *smoking tobacco* cross-legg'd in a great chair at their doors, out of a long *Brass Pipe* adapted to a large *Crystal Hubble-bubble* fixed in a Brass Frame, their Menial Servants surrounding them"

Hookka appears to have been used as a general presentation article in the 17th century. In a list of things to be presented to the Faujdar of Hugli, dated 3rd April 1682 we find *"one Hoocka*, one *pigdan* (spittoon)" [See *Factory Record, Hugli* No. 3 quoted in foot-note 2 on p. 96 of Thomas Bowrey's account of *Countries round the Bay of Bengal* (1666-1679) Hak. Soc., Cambridge, 1905].

Bernier in his *Travels in the Moghul Empire* (A.D. 1656-1668) ed. by Archibald Constable, London, 1891, refers to dealers in tobacco in Bengal as follows :—

Page 441—

"The masters of vessels take care that their crews drink less punch ; nor do they permit them so frequently to visit the Indian women or the *dealers* in *arac* and *tobacco*."

It is clear from this reference that *tobacco* was an article of trade in the Bengal market between 1656 and 1668, the period of Bernier's *Travels* in India. We cannot say if this *tobacco* was imported from outside or was a product of Indian Cultivation.[1] A. K. Nairne in his *The Flowering plants*

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1. The Ministry of Information and Broadcasting (Films Division) prepared in 1950 a documentary film "*MyladyNicotine*" (See p. 21 of their *Catalogue*—1949 to 1955). We are informed in this *Catalogue* that *India is the third largest grower of tobacco in the world*. The tobacco industry employs over half a million workers and brings a large revenue into Indian exchequer through internal consumption and export.

of Western India, Bombay, 1894, p. 210, refers to the cultivation of "Several species of *Nicotiana*, *tobacco* which Lamb calls "plant divine of rarest virtue". Such species are cultivated also "in England as garden and conservatory plants."

John Borthwick Gilchrist published his "*Dictionary, English and Hindoostanee*" in 1810. In the 2nd edition of this *Dictionary* published in London, 1825, we find the following information about *tobacco* :

Vol. I, P. 658 —

"*tobacco*, tumbakoo, bhelsa, gal, Sendhee, Soortee from Soorat (*Surat*) *whence it was first introduced into Hindoostan*, and Bhelsa is the name of a village where the best *tobacco* is produced, (bad) phuskoo, (*cut*) soolfa, (house) bhinde khanu—*tabacconist*, tumbakoogur."

The *Gazetteer* of the *Poona District* [*Bombay Gazetteer*, Vol. XX (revised edition, Bombay, 1954)] p. 202, states that *tobacco* is grown mostly in the villages of Junnar Taluka and also in Indapur, Purandar, Dhond, Sirur, Ambegaun, Poona City and Baramati. We are further informed that "*Tobacco cultivation was introduced before 1841 by the Government who imported Syrian tobacco seeds into this district.*" In the late days of the 19th century Poona was the largest *Snuff* and *tobacco* market in the Deccan (p. 361). Part I of the *Poona Gazetteer* deals with *Medicinal Plants*. On p. 153 there is a note on *tobacco* plant (*Nicotiana Tabacum* Linn.) which gives its names, habitat, properties, uses, etc. *Tobacco* is extensively cultivated in upper Gujarat (Kaira Dist.) and in the area West of the Deccan and the S. M. Country (Satara and Belgaum Districts).

Francis Buchanan in his *Patna-Gaya Report*, Vol. II (1811-1812) published by the Bihar and Orissa Research Society, Patna, records the following information about *tobacco*[1] :—

Page 629 —

"Those who prepare the *tubes used for smoking tobacco* are reckoned better workmen than those in Bengal but not equal to those of Lucknow. Very few of the tubes made here are ornamented with gold and silver. Most of the *tobacco* is here prepared for smoking by *Modis* who retail provisions. Some *tobacco* is prepared as in Bhagalpur by the *Halwais*

1. *Tobacco*, an American plant, came to be cultivated in India rapidly after its introduction long before 1812. About *potatoes* Buchanan observes as follows on p. 680 of his *Report* Vol. II. "The vegetables for eating consist of *potatoes* sent to Banaras and Bengal and of various sorts imported to Patna from the country beyond the Ganges."

(confectioners) and by those who sell *paper-kites* and a good deal by those who make this business their sole profession. Charcoal balls used in smoking are prepared by old women and inn-keepers."

In the *Baroda Gazetteer* (Bombay Gazetteer, Vol. VII, Bombay, 1883) there is a note on the cultivation of *tobacco* in Baroda division (p. 89). *Tobacco* is differently prepared for *smoking*, *chewing* and for being taken as *snuff*. If *gadāku tobacco* is to be prepared the plants are cut off at the root but if *jarda* is to be made only the leaves are clipped.

In the *Hibbert Journal* for July, 1955 there is an article on '*Tobacco as a Sacred Plant*" by Lewis Spence (pp. 394-399). Some points in this article are noted below :—

(1) Not a single instance of native testimony about the evil resultsof tobacco has been noticed by Spence.

(2) The Red Man had employed tobacco for centuries as incense to be burnt before the images of his gods He also employed it against bodily inflammations.

(3) The Mexican priesthood regarded tobacco as a sacred substance.

(4) In 1907 Walter Fewkes excavated some ceremonial rooms at Casa Grande in Arizona with hundreds of tubes used for smoking tobacco.

(5) In Mexican manuscript paintings many of the gods are represented with the tobacco pouch worn by the priests.

(6) The Mexican priests were in the *habit of chewing tobacco* for inducing prophetic visions.

(7) Thomas Heriot, servant to Sir Walter Raleigh, in his *Brief and True Report of the New Found Land* of Virginia composed in *A. D. 1587* refers to the superstitious use of tobacco by the natives of that province.

(8) The North American Tribes attributed magical protective efficacy to tobacco.

(9) It is possible to suppose that a large and important body of belief associated with a definite cult of the tobacco must have existed among the American tribes.

The Annual Report of the Patna Museum (1942-1952) published in 1954 gives a Catalogue of objects added to the museum's Art Section (Appendix E—pages 120-216). Among these objects we find the following of special interest for our present paper :—

Page 120 —No. 824—

"Painting depicting a man smoking "Gargara" (hukka) and a male attendant standing before him."

Page 131 — No. 891 —

"Painting on paper depicting a man making "Hukkas" (hubble bubbles) from coconut shells. A customer bargaining for a "Hukka". Patna School. *19th Century A. D.*"

Page 133 — No. 901 —

"Painting on paper depicting a tobacco dealer weighing *tobacco* (for smoking) on a scale. Two 'gharas' (Jars) probably containing *tobacco* covered by a red cloth, and a bamboo basket containing 'Tikya' (charcoal cake for igniting *tobacco*) and three 'Hukkas' (hubble-bubbles) on the platform. Patna School. *19th Century A. D.*

Page 151 — No. 1023 —

"Painting on paper of a nobleman smoking *Hukka* and enjoying dance and music performed by a party of five women. Seven other persons are also in the group. Jaipur Qalam. *19th Century A. D.*

Page 152 — No. 1024 —

"Painting on paper of a lady seated on 'Takht' and smoking *Hukka* ... ... Kangra School. *19th Century A. D.*

Page 141 — No. 958 (12) —

"Painting on paper depicting a soldier with a gun on his shoulder and smoking Hukka. Southern India School. *19th Century A. D.*

Page 152 — No. 1026 —

"Painting ... nobleman in company of a lady smoking Hukka. Pahari School. *Late 18th Century A. D.*"

Page 153 — No. 1034 —

Painting .....lady resting on a cushion. *Hukka* and *Spittoon* near her. Delhi School. *19th Century A. D.*"

Page 163 — No. 1111 —

"Painting Nur Jahan Begum......*Hukka* in the *left hand*"...... Delhi School. *19th Century A. D.*"

Page 163 — No. 1099 —

"Painting......Nur Jahan with *Hukka*... Delhi School. *19th Century A. D.*"

Page 169 — No. 1129 (3)

Painting on ivory—Muhammad Mirza Fakhru holding *Hukka* in his right hand. (4) *Ivory Painting* — Mohammad Bahadur Shah II holding *Hukka* in his right hand

Page 169 — No. 1130(3)

Ivory painting —Akbar Shah II with *Hukka* in his right hand.

Page 170 —No. 1134—

"*Ivory painting*—Nurjahan with *Hukka* in her left hand. Delhi School. *19th Century A.D.*"

Page 173 —No. 1164—

Ivory painting—Akbar II, son of Emperor Shah Alam holding *Hukka* in his left hand. Delhi School. *19th Century A.D.*

Page 174 —No. 1165—

Ivory painting — Bahadur Shah II with *Hukka* in his left hand. Delhi School. *19th Century A.D.*

Page 177 —No. 1196—

Ivorypainting — a king holding *Hukka* by his right hand... Delhi School ... *19th Century A.D.*

No. 1201—

Ivory painting — Nobleman holding *Hukka* in his left hand. Delhi School...*19th Century A.D.*

Page 178 —No. 1203—

Ivory painting—Nobleman with *Hukka* in Company of a lady... Delhi School... *19th Century A.D.*

No. 1206—

Ivory painting — Nobleman with *Hukka*—two inscriptions mentioning Raja Balawand Singh Bahadur of Banaras... Painter's name Lala Mihar Chand is recorded... Delhi School.. *19th Century A D.*

Page 179 —No. 1207—

Ivory painting — Nobleman with *Hukka* — Date "1227 Fasli" (= A D. 1820) recorded. Delhi School.

Page 180 —No. 1214—

Painting on paper — lady with *Hukka.* Delhi School.

Pages 181-182 — Nos. 1233-1245—

Cut glass *Hukkas* (No. 12—Blue glass, No. 1244—Red glass).

Page 182 —Nos. 1250 and 1251—

Marble Hukkas.

—No. 1252 and 1253—

Black Stone Hukkas.

Page 188 — No. 1309—

Silver enamelled *Hukka* with copper base.

—No. 1310—

Silver enamelled base of the above *Hukka. 17th Century A.D.*

Page 189 — *Bidri Hukkas* (Nos. 1386-1388 ; 1393-1398 ; 1400-1402).

Page 207 — No. 1597—

Painting on *mica* of a bearded man holding *Hukka* (Patna Style of painting).

In the *Account of Countries round the Bay of Bengal* (A D. 1669 to 1679) Thomas Bowrey has given us pictures of two different types of *Hookas* with pipes for smoking tobacco (see plate VIII facing p. 104 of this Account published by the Hakluyt Society, Cambridge, 1905). These are the only datable pictures of *hookas* in use in India about A.D. 1670.

My friend Prof. Dr. E. Sluszkiewicz of Warsaw (Poland) informs me in his letter of 30th March 1956 that *tobacco* was introduced into Poland in A.D. 1590 by Uchanski from Constantinople in Turkey, where he was then Poland's envoy.

Another friend, Dr. Vittore Pisani of Milan (Italy) writes as follows about the introduction of Tobacco in Italy in his letter of 12th February 1956 :—

"As to the introduction of Tobacco in Italy I can only say that this event might have taken place about A.D. 1560. Some years before that seeds had been taken to Spain and Portugal and in 1560 the famous Jean Nicot sent them to King Francois II and to Caterina de' Medici, the French Sovereigns. As Caterina came from Florence and in her court Italians were very numerous, it is possible that through them the plant became instantly known in Italy, where *tobacco* was named after the Cardinal Nicolo Tornabuoni that was the nuncio at the French Court and probably first introduced in Italy the plant that received his name."

49. History of the Art of Grafting Plants
(Between c. 500 B.C. and A.D. 1800)*

In the *Encyclopaedia Britannica* (1929, Vol. 10, pp. 598-600) there is an article on *Grafting* in *Animals* which begins with the following remarks :—

'Every gardener is well acquainted with grafting in plants. But it is less well known that pieces of animals too may be joined in permanent union. Grafting in animals is practised mainly for scientific purposes or for the restoration of weakened or lost parts etc.'

In the article on *Horticulture* (*Enc. Brit.*, Vol. 11, 774 ff) we are told that the term *Horticulture* is derived from the Latin *hortus*—a garden and *Culture* — cultivation. *Horticulture* originally meant the cultivation of a garden in contrast to agriculture or the cultivation of fields. In the remarks on *Plant Raising* in this article we are informed that '*some plants give their best when grown on roots which are not their own*... ...This is a very convenient method of increasing plants, for the stocks may be grown and got ready to receive the particular variety, which is joined on by *grafting* or budding. *Grafting* is a spring operation. etc.' In the above article I don't find any reference to the history of *grafting*.

In the article on *Chimaera* (*Ency. Brit.*, Vol. 5, p. 502) we are informed that this term is used in botany to apply to certain types of plants formerly known as '*graft-hybrids*'. These *Chimaeras* have been known in gardens for some time but their nature was understood in 1907 by H. Winker, who produced many *Chimaeras* by *cleft-grafting* of main shoots.

In this article also I don't find any history of the art of grafting practised by nations of antiquity.

In his Marathi book[1] on horticulture Prof. H. P. Paranjpe, retired Govt. Horticulturist, makes some remarks on the *history of grafting* (कलमांचा इतिहास) which are pertinent to the present inquiry. I note below some points from these remarks :—

(1) It seems that the art of grafting may not have beeu current in ancient India.

(2) There is no doubt that the Portuguese first introduced this art in India.

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* *Indian Culture*, Vol. XIII. No. 1. pp. 25-32.

1. *Phaljhaḍañca Bag*, Poona, 1930, pp. 42-43.

(3) Under the rule of the Marathas and that of the Bijapur kings much attention was paid to *mango* cultivation and several verieties of *mango*were cultivated but there is no evidence to prove that *grafting* was practised in this connection.

(4) Rao Bahadur C. V. Vaidya in his work महाभारताचा उपसंहार (p. 349) quotes thefollowing line from the *Dronaparva* of the *Mahābhārata*:—

"चूतारामो यथा भग्नः पंचवर्षः फलोपगः । "

This line refers to the destruction of a mango garden, in which the trees, five years old, are bearing fruit. According to R. B. Vaidya this simile brings to our mind the idea of gardens of small grafted mango trees bearing fruit, now current. Prof. Paranjpe states that it would be too bold a presumption to conclude from the above reference that the art of grafting was current in *Mahābhārata* times.

(5) Ordinary seed-grown mango trees, if properly cultivated, are capable of bearing fruit within five or six years. It is a matter for surprise how the art of grafting disappeared from India, a preponderantly agricultural country, if it was once known. It is also surprising why this art, if it existed, did not spread and further why we should not find Deśī or *Sanskrit* words for the terms कलम and ट now in vogue.

The mango fruit and tree have been very popular in India and any art which can make this tree bear fruit early would be welcome to all. If such an art was once known it seems impossible that anything could have made it extinct.

(6) There is a tradition at Ratnagri that Mount Stuart Elphinstone (A.D. 1779-1859) planted a grafted mango tree at this place at the close of the Peshwa period. This tree is still pointed out by the local people. Though it is a very old tree we cannot say how far this tradition is true to history.

Itis clear from the above remarks that the art of grafting was unknown in India before the Portuguese advent in India (A.D. 1498) according to Prof. Paranjpe.

Maharaja Daulatrao Scindia of Gwalior (*A.D. 1780-1827*) was a great lover of gardens and gardening. He laid out the famous *Phool Bag* of Gwalior. Śiva Kavi, a court-poet of this Maharaja, composed a Hindi

work called *Bag Vilas*[1] in which he refers to the four types of *roses* and many other fruit and flower trees worth planting in a model garden. In the following lines he refers to the कलम of roses (गुलाब) :—

"जल दे आश्विनमासमे ; पुनि सुन लेहु जवाब ।
पूस मास मे कलम कर सींचो सरसगुलाब ॥
आवे कली गुलाब मे, तबको सुनो विधान ।
कृष्णपक्ष भरि माघ मे, नीर न दीजे जान ॥"

The reference to the कलम of roses in the month of *Pusa* or *Pauṣa* (January-February) is worth noting. I leave it to our horticulturists to say if the term कलम[2] here refers to the *grafting* of roses or merely ordinary *cutting* taken for transplantation.

In the *Shorter Oxford Dictionary* we get the following information about the term GRAFT and its derivations :—

GRAFT = *1483* (a modification of *Graff*)—the nature of —*t* is uncertain

= a shoot inserted in a slit made in another stock

= (*1626*)—to insert a graft or grafts

= (*1624*)—to produce (fruits) by grafting.

GRAFTER = (1616) one who grafts trees.

= (1884) a kind of hand-saw used in grafting.

Graff—arch. ME (OF. *grafe, greffe* (mod. *greffe*), late L. *graphium, etc.*) The usages of the term *Graft* recorded above begin from *A.D. 1483*, i.e. 15 years earlier than the Portuguese advent in India (*A.D. 1498*). We must record the usages of the term कलम in the sense of 'grafting' in Hindi literature, if any, between, say, A.D. 1500 and 1800.

In the article on *Mango* in the *Hobson-Jobson* (Yule and Burnell, London, 1903, pp. 553-555) we find a record of references to *Mango* by foreigners from *c. A.D. 1328 to 1883*. In these references *Goa mangoes* are praised as follows :—

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1. My friend Subbedar B.R. Bhalerao of Gwalior has published an article on *Bag Vilas*. I am quoting from an offprint of this article kindly supplied by him. (See also my article on *Manufacture of Rose-water*, etc. in *New Indian Antiquary*, Vol. VII, pp. 180-183.)

2. In the Marathi *Śabdakośa* by Date-Karve, Vol. II (1933) pp. 621-622, the term कलम and its several meanings are recorded. Among these meanings we find कलम explained as the art of *grafting*. Six kinds of grafting recorded here are :—

(1) जिभलीचे कलम, (2) पाचरीचे कलम, (3) डोळ्याचे कलम, (4) खुंटीचे कलम, (5) गुटीचे कलम, (6) पेटकलम—No usages of the term कलम have been recorded in this dictionary. Hence it is difficult to say when the term कलम came to be applied to the art of *grafting*.

A.D. 1663 —*Bernier* in his Travels states that the best mangoes 'come from *Bengale*, Golkunda and *Goa* and these are indeed excellent.'

A.D. 1673 —*Fryer* refers to *Goa mangoes* as follows : –

' When ripe the apples of the Hesperides are but Fables to them ; for taste the Nectarine, Peach and Apricot fall short.'

A.D. 1727 —*A. Hamilton* praises *Goa mangoes* :

'The *Goa mango* is reckoned the largest and most delicious to the taste of any in the world and I may add, the wholesomest and best tasted of any fruit in the world.'

Evidently the above references to *Goa mangoes* are to the *grafted*varieties, which were produced by the care and skill of the Jesuits (see *Annes Maritimos*, ii, 270) we must collect and record references to *Goa mangoes* in Indian sources between A.D. 1550 and, say, 1800. I propose to record in a special paper the history of grafted mangoes in India. In the Present Paper I am concerned with the historyof the art of grafting, which has revolutionised horticulture in all countries of the world.

Though the Jesuits of Goa practised the art of grafting on Indian mango trees and produced its best varieties they were not the inventors of this art. In his chapter on the 'Spread of the Mohammedan Power', Davies[1] speaks of the contribution of the Mohammedans to science and culture. In this connection he quotes an extract from *Europe in the Middle Ages* (Thatcher and Schwill) published by Murray. In this extract, a reference is made to the art of *grafting* practised by the Mohammedans as follows:—

'They (Mohammedans) practised farming in a scientific way. They had good systems of irrigation. They knew the value of irrigation. They knew the value of fertilizers. They fitted their crops to the quality of the ground. *They excelled in horticulture. They knew how to graft and were able to produce some new varieties of fruits and flowers.* They introduced into the West many trees and plants from the East.'

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1. Vide p. 286 of *An Outline of the History of the World* by H. A. Davies, Oxford University Press, London, 1937. The Mohammedan or Arabic civilization during the five centuries following the death of Mohammed evolved a civilization much superior to anything that existed in Europe at the time. This civilization was greatly indebted to the civilization of *Greece*, *Persia* and perhaps *India* as well ; but it added something of its own to what it received from these sources ... ... The conquests of the *Turks* were fatal to this civilization ... ... Spain was beyond the orbit of Turkish influence and the Moorish civilization in Spain maintained its vigour and power for centuries longer.

If the above remarks are correct the history of the art of *grafting* goes back to the period of Arabic or Mohammedan civilization, say between A.D. 650 and 1150 and as this civilization was indebted to Greece, Persia and perhaps India as well, we have to trace references to *grafting* in all these sources. For this purpose I note below the following information about *grafting* gathered byme from *A Short History of Plant Sciences* by Howard S. Reed, Waltham, Mass., U.S.A., 1942 :—

> *Page 35—Theophrastus* of Eresus was the founder of the botanical science. He was born *c. 371 B.C.* He was a disciple of Aristotle who had the highest esteem for this disciple. Aristotle in his Will gave Theophrastus his garden and library. Theophrastus took Aristotle's son under his care after his father's death. Theo. wrote 200 treatises of which two botanical works—(1) *The History of Plants* and (2) *The Causes of Plants* — have survived. His knowledge of plants included many plants brought from Asia by Alexander's followers.

Prof. Reed quotes Green's *Landmarks of Botanical History* (Part I — prior to 1562 A.D.), Smithsonian Institution, 1909 :—

> ' He (Theo.) wrote from the midst of an advanced civilization ... ... a time when many cultivated varietiesof all sorts of things had been derived through cultivation and when it was perfectly well known that such improved varietiescannot be depended on to come true to seed, but may be preserved, and the stock of each increased by division of roots, by cuttings, and by *grafting*.'

P. 38 —De Causis Plantarum (The Causes of Plants) of Theophrastus contains lessof scientific interest than the *Historia* (The History of Plants). ... ... The subjects discussedare :—

(1) propagation of plants by *seeds, grafting* and *budding*,
(2) the effects of weather and soil,
(3) the arts of cultivation,
(4) growth and periodicity in plants,
(5) heat and cold in plants.

P. 39 —Theo. studied underPlatoand Aristotle and witnessed the careers of Philip and Alexander of Macedon and knew the latter personally. He *died* about *285 B.C.* having remarked '*We die just when we are beginning to live*.'

P. 91 —Edme Mariotte (*c. 1620—1684*) developed research in France ... ... He made some very pertinent observations stating that the sap of the original trunk acquires different qualities in each *graft* as shown by the character of the fruits.

P. 116 —Picture of *graftage* from *P. Crescentus*, Basil, 1548.

It appears from the references to *grafting* in the works of *Theophrastus* (B.C. 371-285) that the art of *grafting* was an established feature in Greek horticulture in the fourth century B.C. We may, therefore, safely take the antiquity of grafting up to about 500 B.C.

Pliny the Elder (*A.D. 23-79*) was one of the most meritorious of the Roman writers. He had extraordinary capacity for work and described the way in which he continuously studied, read, or dictated to his secretaries. His *Natural History* in 37 books is a very elaborate encyclopaedia, containing a wealth of information not to be found elsewhere. He said it was compiled from some 2,000 volumes most of which have since been lost. His principal authorities were Greek. *Aristotle* and *Theophrastus* were frequently mentioned.

In view of the above information about Pliny recorded by Prof. Reed (*Plant Sciences*, pp. 41-43) I have begun to study Pliny' *Natural History* in its English Translation[1] by H. Rackham (Loeb Classical Library, William Heinemann,London. MCMXLV). In Book XV Pliny makes the following remarks about *grafting* :—

Page 327 — Grafting.

> 'XVII. *This department of life has long ago arrived at its highest point*, mankind having explored every possibility inasmuch as *Virgil* (Georg. II. 69) speaks of *grafting* nuts on an arbutus, apples on a plane and cherries on an elm. And nothing further can be devised - at all events it is now a long time since any new kind of fruit has been discovered. Moreover religious

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1. Vol. IV (Books XII-XVI deal with *vines* and trees). Book XIII deals with *foreign trees* andtheir use in supplying scent, fruit, *paper* and wood. Pliny mentions *attar of roses*, *oil of saffron*, almond-oil, cardamom, cinnamon, fenugreek (मेथी), oil of sesame, olive oil, costus (कुष्ठ), grape, palm trees, dates, plums, pistachio, figs. Egyptian gum, papyrus (discovery of paper due to the victory of Alexander, before which people wrote on palm leaves and other barks), parchment invented at Pergamum, *citrus oil used for preserving books against moths*, cotton, peacock's tail, poppy, lotus tree of Africa, pomegranate (5 kinds), *glass*, etc.

Book XII mentions ivory, citron, earthenware pots (with holes) in which plants were imported, *Indian trees* (ebony, banyan tree, banana, flax tree, ginger), cane-sugar from India, more esteemed, linen of India, costus of India, Indian nard, frankincense, cinnamon, etc.

For those who care to study the history of Indian Materia Medica a close knowledge of Pliny's *Natural History* is essential. We must know the history of each drug in its world-perspective.

scruples do not permit us to cross all varieties by *grafting*, for instance, we must not *graft* upon a thorn, inasmuch as it is not easy to expiate thunderbolts when they have struck them, and it is declared that the same number of bolts will strike it in a single flash as the kinds of trees that have been grafted on it.'

Page 359 — 'XXX. Before the victory of Lucius in the war against Mithridates, that is down to 47 *B. C.* there were no *Cherry* trees in Italy. Lucullus first imported them from Pontus and in 120 years they have crossed the ocean and got as far as Britain ... ... It is less than five years ago that what is called *laurel-cherry* was introduced, which has a not disagreeable bitter flavour and is produced by *grafting* a cherry on a bay-tree'.

The above extracts of the *first century A. D.* clearly prove that the art of *grafting* had reached its highest point in Rome in this century. We have seen above that Pliny quotes *Virgil*, the first of all the Roman epic poets (*B C. 70 — A D. 19*) on *grafting*. When Pliny wrote, there was a revival of intellectual energy in every field. Geographical horizons were enlarged, London was established as a Roman Settlement, Agricola sailed for the first time around Britain and an *ocean route of India* was opened up through the Red Sea. We have already noted above the Indian plants noted by Pliny, viz., the *banyan, banana, flax, pepper, ginger*, etc. In view of this Roman contact with India as also the earlier Graeco-Indian contact and the Greek occupation of the Panjab (between 190 B C. and 40 A. D.) we are tempted to inquire if the fame of the art of *grafting* current in Greece and Rome between, say, 500 B. C. and 100 A. D. had reached India prior or posterior to the composition of the earliest medical treatises of *Caraka, Suśruta* and others, which show a deep knowledge of plants[1] of medical and nutritive value. The question now arises: Did the Indiansdevelop the art of *grafting* at any stage of their botanical history ?

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1. Vide pp. 152-153 of Dr. R. N. Saletore's *Life in the Gupta Age*, Bombay, 1943. Here *trees* mentioned in Gupta inscriptions are recorded as follows: *A. D. 423-424*—[कूलताल, बन्धूक, बाण]; *A. D. 473-474*—[रोध्र, प्रियङ्गु, लवली, नागण अशोक, सिंदुवार, कुरबक, अतिमुक्तक] ; *A. D. 482* [वृक, आम्रात]; *Kalidasa* mentions the following plants: कोविदार, पुन्नाग, सप्तपर्ण, ताम्बूली, पूग, अक्षोट, सहकार, ताली, प्लक्ष, छत्त्यक, पारिजात, शमी, अशोक, श्याम, तमाल, सरल, कटक, लोध्र, देवदारु, सल्लकी, नीप, साल, कृष्णागुरु, खर्जूर, हरिचन्दन, अतिमुक्त, — *trees*; *creepers* like प्रियङ्गु, लवली, माधवी, निचुल etc.; *flowers* such as—लोध्र, सन्तानक, केतकी, मालती, बकुल, यूथिका, शिरीष, नमेरु, कदम्ब, अशोक, लवङ्ग, मधूक, पङ्कज, बन्धुजीव.

The only evidence about the *Indian knowledge of grafting* so for pointed out by scholars belongs to the *sixth century A. D.* It is as follows :—

Dr. G P. Majumdar in his chapter on *Plant Physiology*[1] (pp. 39-40 of *Vanaspati*, Calcutta, 1927) records the following evidence of the *Bṛhatsaṁhita* of Varāhamihira (*c A.D. 500*) :—

> 'Methods of plantations by *cutting* and *graftings* : In addition to the ordinary method of *propagation by seeds* the methods of propagation by *cuttings* and *graftings were known from time immemorial*, so much so, that the plants to which these methods can be applied are definitely named.'

The following verses from the *Bṛhatsaṁhita*[2] distinctly name the plants and these methods :—

> '*Kānthāl* (Jack fruit tree), *Aśoka*, *Kadali* (plantain), *Jambu*, *Lakoocha*, *Dāḍima*, *Drākshya*, *Pālivata*, *Vijapura* (Mātulanga), *Atimukhtaka* — these are the plants to be propagated by means of *cuttings* besmeared with cowdung (एते द्रुमाः काण्डा रोप्याः गोमयेन प्रलेपिताः)
>
> 'Better than this method is the method of propagation by *grafting*. This can be done in two ways — the cutting of one plant is either inserted on the *root* of another plant, or on the *stem* of another plant (मूलोच्छेदेऽथवा स्कन्धे रोपणीयाः परं ततः).'[3]
>
> '*Grafts* should be smeared with cowdung. For transplanting (अन्यदेशे नीत्वारोपयेद्विपर्ययः) the plants should be smeared from root to the top (आमूलस्कन्धलिप्तानां) with ghee (clarified butter), sesame oil, the honey of the Khudra variety of the bee of the Ushira (Andropo-

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1. On p. 62 of *Vanaspati* Dr. Majumdar refers to the various methods of propagation of plants, viz. (1) बीजरुह by fruits and seeds, (2) मूलज by roots, (3) स्कन्धज by cuttings, (4) स्कन्धे रोपणीया: by graftings, (5) अग्रबीज by apical portions, (6) पर्णयोनि by leaves, (7) सीनरुज (?) Here also Dr. Majumdar refers to only the बृहत्संहिता passage regarding *grafting* (chapter 54 of बृहत्संहिता, stanza 6).

2. Vide p. 303 of *Bṛhatsaṁhita* (Calcutta, 1865) :—
"पनसाशोककदलीजम्बूलकुचदाडिमाः ।
द्राक्षापालीवताश्चैव बीजपूरातिमुक्तकाः ॥४॥
एते द्रुमाः काण्डारोप्या गोमयेन प्रलेपिताः ।"

3. *Ibid.*—"मूलच्छेदेऽथवा स्कन्धे रोपणीयाः प्रयत्नतः ॥५॥"
(*Variants.*—D.N.—मूले ; E—मूलच्छेदेषु without अथवा ; C—in the text परं ततः ; E—परंतप; for प्रयत्नतः . it seems after the expl. that Cr. परं ततः.)

gon Laniger or Andropogon citrarum), the *Vidanga* (Embelica ribes) milk and cowdung.'[1]

The above reference to *grafting* recorded by Dr. Majumdar has been reproduced by Prof. R. Gangopādhyāya in his book on *Agriculture and Agriculturists in Ancient India*, Serampore, 1932, on page 69. In referring to this evidence Prof. Gangopadhyāya observes :—

Cutting and grafting :—

'The method of propagation by *cutting* and *graftings* was also *known to India from very early times*. The following lines from the *Bṛhatsamhita* (chapter 55) will be illustrative.'

We must try to record more evidence in support of the evidence of the *Bṛhatsamhita* regarding *grafting*[2] as practised in India about A. D. 500.

The reference to *grafting* in the *Bṛhatsamhita* is made 450 years later than Pliny's passage on grafting quoted by me and so far as I know it is the only reference advanced to prove the Indian knowledge of *grafting* prior to the use of the grafting method on Indian mango trees by the Jesuits of Goa about A.D 1550. Are we to suppose that the art of grafting was known to Indians, say, up to A.D. 600 but later fell into disuse and consequently no references to it were made in the numerous literary works, medical or otherwise ?

Any popular practice like *grafting* having a direct bearing on agriculture is not likely to remain silent if it was widely practised in all the

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1. *Ibid* —"अजातशाखान्शिशिरे जातशाखान् हिमागमे ।
वर्षागमे च सुस्कन्धान्यथादिक् प्रतिरोपयेत् ॥६॥
घृतोशीरतिलक्षौद्रविडङ्गक्षीरगोमयैः ।
आमूलस्कन्धलिप्तानां संक्रामणविरोपणम् ॥७॥"

2. Compare the following remarks about *plastic surgery* of Indians on p. 178 of *Aryan Medical Science* by the Thakore-Saheb of Gondal, London, 1896 :—

'They (Indians) were experts in forming new ears and noses. This operation has been practised for ages in India, where cutting of the nose and ears was a common punishment, and "Our modern Surgeons have been able to borrow from them (Hindoos) the operation of *rhinoplasty*" (*Weber*). On this subject *Dr. Hirschburg* of Berlin says: "The whole *plastic surgery* in Europe had taken its new flight, when these cunning devices of Indian workmen became known to us. The transplanting of sensible skinflaps is also an entirely Indian method."

provinces of India through centuries. The Indians developed large gardens[1] and practised horticulture for pleasure and profit as proved by the evidence of Jain, Brahmanical and Buddhist texts. We must, therefore, make a thorough search in these and allied texts and see if there is any additional evidence about *grafting* to corroborate the *Bṛhatsaṁhitā* reference noted above.

As the art of *grafting* is connected with horticulture we have to trace its history in the history of the Plant lore of Assyria and Egypt,[2] which is earlier than the Plant lore of the Greeks and Romans The *Assyrians* cultivated fruits in the alluvial plain deposited by the Tigris and Euphrates[3] rivers. Agriculture developed early in Assyria and was successfully prosecuted for many centuries. When and where the Assyrians got their crop plants is not known. Some were indigenous while others came from the Iranian plateau. In addition to cereals the Assyrians cultivated *fruits*, including *apricots, figs, olives, pomegranates, quinces*, and *grapes*. The *Egyptians* began the cultivation of food-plants 'possibly ten thousand years ago'. The records of the botanical achievements of the Egyptian are scanty. What we know has been obtained indirectly from the pictures on the walls of tombs and the funeral wreaths and fragments of plants preserved in these tombs. *Herodotus*, the Greek historian, travelled in Egypt about 465 B.C. and recorded an account of the cultivation of crops and fruits as he observed it personally. In addition to cereals the Egyptians cultivated plants such as *beans, lentils, radishes, melons, onions* and *garlic*. Herodotus mentioned several of them as articles given to labourers who constructed the Great Pyramid. Many ideas of the Materia Medica of the

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1. See p. 54 of *Arthaśāstra* (Eng. Trans. by Shama Sastry, Mysore, 1929), chap. on 'Buildings within the Fort'.

'Families of workmen may in any otherway be provided with sites befitting their occupation and field work. Beside working in *flower gardens, fruit gardens, vegetable gardens* and *paddy fields* allotted to them, they (families) shall collect grains and merchandise in abundance as authorized.'

Prof. Reed in his *Plant Sciences* (pp. 113 ff.) deals with the history of (1) *Roman Gardens*, (2) *North European Gardens* (from the time of Charlemagne onwards), (3) *Post-Renaissance Developments in European Gardens*, and (4) *Plant Introductions*.

2. Vide pp. 8—15 of *Plant Sciences* by H.S. Reed.

3. Vide the *Description of Mesopotamia and Baghdad written about 900 A.D.* by Ibn Serapion in Arabic (article in *J.R.A.S.*, 1895, by Guy le Strange).

The Arabs inherited from the Persians the system of canalization, which joined the lower courses of the *Euphrates* and the *Tigris* making the *sawād* or alluvial plain one of the richest countries of the East.—Yākūt (*A.D, 1225*) says that *Naṣibin* (Roman *Nisibis*) was celebrated for its *white roses* and its 40,000 gardens. *Dates, oranges, lemons* were grown at *Jabal Barimma*.

Egyptians appear to have been borrowed later by the Greeks. The oldest Egyptian medical papyrus was written about 1900 B.C. This record implies a long development of Egyptian botany and medicine probably from 3000 B.C. The Egyptians domesticated plants or introduced them from *Chaldaea*.

The foregoing points about the Egyptian and Assyrian plant lore noted by me from Prof. Reed's book on the *History of Plant Sciences* lead us to inquire: Was the art of *grafting* practised by the Greeks and Romans inherited by them from the Assyrians and Egyptians? My cursory perusal of Reed's book has not been successful in locating an exact answer to this query in his most scholarly account of the history of the Plant lore of the ancients, though it is possible to suppose that the Greeks, who borrowed some ideas from the Egyptian Materia Medica, may have borrowed the art of *grafting* from them or from the Assyrians, who were pioneers in horticulture many centuries prior to the blossoming of Greek culture and civilization.

We in WesternIndia have been cultivating the grafted mangottrees for more than 100 years and eating their fruitsevery season but the history of the *art of grafting* plants, which has revolutionized horticulture during the last 2,500 years, is absolutelyunknown to us. I have, therefore, recorded in this paper some facts about this history and am sure they will be supplemented by other scholars with references to *grafting* in India and foreign sources. I would specially welcome the evidence of *Pehlvi*, *Persian* and *Arabic* texts on the art of *grafting* from scholars who have made a close study of these texts, both published and unpublished. The following table will show at a glance the chronology of references to *grafting* recorded in this paper :—

Chronology.	Source.	Reference G=grafting.
B.C. 37—285	Theophrastus (Greek), father of botanical science	Refers to G in his *'The Causes of Plants'*. Theophrastus was a pupil of Plato and Aristotle.
B.C.70—A.D. 19	Virgil (Roman poet)	Refers to G of nuts, apples and cherries (*Georg.* II, 69) according to Pliny.
A.D. 23—79	Pliny the Elder (Roman)	Refers to G 'at its highest point' in his *Natural History* (Book XV). He also refers to many Indian plants like *banyan*, *banana*, *flax*, *pepper*, *ginger*, etc
c. A.D. 500	Varāhamihira (*Bṛhatsaṁhita*, chap. 54, verse 6)	Refers to G in his remarks on plant propagation.
Between A.D. 600 and c. 1100	*History of the world* by Davies	Refers to G practised by Mohammedans (during the 500 years following the death of Mohammed). They introduced many plants into the West from the East. They were indebted in this respect to *Greece*, *Persia* and perhaps *India*.

Chronology	Source	Reference G—grafting
A.D 1483	*Shorter Oxford Dictionary*	Usages of the term '*graft*' dated *1483, 1626, 1624, 1616* (grafter), and 1884 (grafter—a hand saw used in grafting).
A.D. 1498	Portuguese contact with India	
A.D. 1548	P. Crescentus (Basil. 1548)	Picture of *graftage* in a printed work.
Between A.D. 1550 and 1575		Jesuits of *Goa* practise G on Indian mango plants and produce some new varieties of mangoes.
A.D. 1624—1684	Edme Mariotte (of France)	He observed that the sap of the original trunk acquires different qualities in each *graft*.
A.D. 1663	Bernier's *Travels*	Bernier's praise of *Goa mangoes*.
A.D. 1673	Fryer	Praises *Goa mangoes*.
A.D. 1727	A. Hamilton	Describes *Goa mangoes* as *largest and most delicious to the taste*.
A.D. 1794	Edward Moor (*Narrative of the operations*, etc., London, 1794, p. 306)	Refers to *Goa mangoes* : '*mangoe*—An exquisitely delicious fruit of which the finest species grows in Bombay, called the *Mazgaon mangoe*. *Goa* produces several *fine species of this super-excellent fruit* which in that article is the only superiority India can boast over England.
A.D. 1795—1801	Muhmmad Karim (*Sawanihat-i-Mumtaz*, Eng. Trans. by S.M. H. Nainar, Part I, 1940, Madras University, Islamic Series, No. 5, page 151)	Nawab Walâjah II of Carnatic visits the garden of Lord Edward Clive, Governor of Madras, the son of the celebrated Lord Clive. Edward Clive became Governor of Madras in 1798. He garden is described as 'full of *mango* trees and *grafted* varieties of the best quality.[1]

P.S.— Since this paper was drafted I have received the following information regarding *grafting* from two learned friends of mine :—

(1) Rao Bahadur K. V. Rangaswami Aiyangar writes on 3-4-1946 from Delhi :—

'As regards *grafting*, the Tamil name for it is *ottu*, i.e. gumming up or dovetailing, which is descriptive. The mango known to Tamil literature is the ordinary ungrafted one. I believe the Musalmans introduced it in South India. The process of rejuvenation and acceleration of growth that grafting causes could not have been missed by our poets, when they wanted figures of speech, if it was known to them. Till recently the only grafted plant was the mango............ Most grafted mangoes now bear Arabic names.'

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1. I shall deal with the reference in detail in my proposed paper on the history of grafted mangoes in India.

(2) Mr. M. S. Randhawa, I.C.S., Imperial Council of Agricultural Research, New Delhi has kindly sent to me on 16-4-1946 some extracts about mango cultivation and grafting. I quote below the following extracts gathered by Mr. Randhawa about the antiquity of the Art of grafting :—

> 'The art of grafting is an old one. Readers of the Bible may recollect St. Paul's sustained simile of the *grafting* of wild olive tree on to the good olive tree. *Romans*, XI-17—24'.
>
> (Firminger's *Manual of gardening*, p. 86.)
>
> '*Grafting* is of ancient origin as a horticultural practice. In his *Natural History* (Vol. 2), Pliny about 2000 years ago wrote about it as common practice.'
>
> (Kains and Mc Questen—*Propagation of Plants*, p. 264).
>
> 'PLINY, writing before the birth of Christ, recognized *graftage* as horticultural practice and it is known that it was practised before his time. *Columella*,[1] who diedshortly after the birth of Christ, mentioned certain kinds of graftage, particularly the *bark graft*, *cleft graft* and *patch bud*, which he said had been practised by the ancients.'
>
> (Adriance and Brison—*Propagation of Horticultural Plants*, p. 149.)

I am extremely thankful to Rao Bahadur Aiyangar and also to Mr. Randhwa for their interest in the subject of this paper. It is really a matter for pride that Randhwa should answer my queries regarding *grafting* with wonderful alacrity and promptness in spite of his administrative preoccupations.

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1. *Columella*, L. Junius Moderatus was a native of Gades in Spain and a contemporary of Seneca. He lived in Rome and wrote a work on agriculture (*De Re Rustica*) in 12 books which is still extant. (Vide p. 162 of *Smaller Classical Dictionary* by Smith, Every Man's Library, London, 1913).

In the *Bible* (NewTestament, *Romans*, XI, 17—24) the word *graff* is used for *grafting* as will be seen from the following extract :—

> '24. For if thou wert cut of theolive tree which is wild by nature and wert *graffed* contrary to nature into a good olive tree : how much more shall these, which be the natural *branches*, be *graffed* into their own olive tree ?'

50. References to Grafted Mangoes in India between A. D. 1550 and 1800*

In 1946 I published an article[1] on the *History of the Art of Grafting Plants* (between c B. C. 500 and A. D. 1800), in which I have recorded references to *grafting* from the time of Theophrastus onwards from Indian and foreign sources. Among these references I have noted the following references from Indian sources :—

(1) Varāhamihira (c. A. D. 500) is supposed to refer to *grafting* in his *Bṛhatsaṁhitā* (Chap. 54, stanza 6) in his remarks on plant propagation.

(2) Edward Clive, the son of the celebrated Lord Clive, became Governor of Madras in 1798. His garden was "full of *mango* trees and *grafted* varieties of the best quality" (see p. 151 of English Trans. of *Sawāniḥat-i-Mumtaz* of Muhammad Karim, Part I, 1940 — Madras University Islamic Series, No. 5).

(3) The Jesuits of Goa practised *grafting* on Indian mango plants between A. D. 1550 and 1575 and produced some new varieties of mangoes.

Except the references noted above I have no material about *grafting* in India. If the art of *grafting* was current in Varāhamihira's time (c. A. D. 500) why should there be no continuity of evidence about it in Indian sources ? On the contrary the following extract from Bernier's *Travels*[2] in the Mogul Empire (A. D. 1656-1668) clearly states that the gardeners in Kashmir "do not understand the culture and *grafting* of trees":—

In his description of the fruits of Kashmir Bernier observes :—

"The fruit is certainly inferior to our own, nor is it in such variety ; but this I am satisfied is not attributable to the soil but merely to the comparative ignorance of the gardeners, for they do not understand the culture and *grafting* of trees as we do in France. I have eaten, however, a great deal of very excellent fruit during my residence in *Kachemire* (Kashmir), and should entertain no doubt

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**Journal of University of Gauhati*, Vol. X, No. 1 (Arts), pp. 81-83.

1. *Indian Culture*, Vol. XIII, No. 1 (July-Sept. 1946), pp. 25-34.

2. *Travels in the Mogul Empire*, Constable, London, 1891, p. 397. G. 11.

of its arriving at the same degree of perfection as that of Europe if the people were more attentive to the planting and soil of the trees and introduced grafts from foreign countries."

I have referred to the *grafting* practised by the Jesuits of Goa on Indian mango trees between A. D. 1550 and 1575. They produced different varieties of grafted mangoes which were sold in India in the 17th century. The following evidence about these varieties from the *Travels* of European travellers is noteworthy :—

(1) Giovanni Francesco Gemelli Careri was born of a noble family of Radicena (Calabria) in A.D. 1651. He was in India in 1695. His *Travels*[1] in *several* volumes were published in Italy between 1699 and 1728. In these *Travels* Careri has recorded a chapter on the Fruit and Flowers of Indostan[2]. Speaking of the varieties of mango Careri observes[3]: —
"Some are called *Mangas Carreiras* and *Mallaias*, others of *Nicholas Alfanso*, others *Satias*, and others by other Names, all of them exceeding any European fruit in delicate taste."

(2) Another traveller from Italy, Manucci (A. D. 1639-1717) was in India between A. D. 1656 and 1717. In his *Travels*, Vol. III, p. 180, he refers to several varieties of Goa mangoes as follows:—
"The best mangoes grow in the island of Goa. They have special names which are as follows:—
mangoes of *Niculao Affonso*, *Malaiasses*, *Carreira branca*, *Carreira vermelha*, of *Conde*, of *Joani Pereira*, *Babia* (Large and round) of *Araup*, of *Porta*, of *Secreta*, of *mainato*, of *Our Lady*, of *Agua de Lupe*."[4]

In the article on *Mango* in *Hobson-Jobson* (by Yule and Burnell, London, 1903, pp. 553-555) dated references to *mango* are recorded. Among these references I find the following reference to Goa mangoes, which are evidently grafted mangoes :—

(1) A.D. 1663 — Goa mangoes are excellent, says Berneir (see extract from Bernier's *Travels* quoted by me already).

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1. Edited by S. N. Sen. New Delhi, 1949 (Indian Record Series), Introduction, pp. XXI-XXV.

2. *Ibid.*, pp. 199-206.

3. *Ibid.*, p. 202.

4. See note No. 37 by Dr. S. N. Sen, on p. 358 (*ibid*). Dr. Sen remarks :— "of the four varieties mentioned by Careri only one the *Satias* does not occur in Manucci's list, unless it is to be identified with *Secreta*. *Niculao Affonso* otherwise known as *Afus* or *Hafus* still retains its popularity and fetches a very high price."

(2) A. D. 1673 — Fryer also refers to the Goa mangoes as the best ones.

(3) A. D. 1727 — A. Hamilton says:—"The Goa mango is reckoned the largest and mostdelicious to the taste of any in the world and I may add the wholsomest and best tasted of any fruit in the world."

It will be seen from all the data recorded above that the art of grafting was introduced into Indian horticulture only after about A D. 1550 but its operation was confined to Goa say between A. D. 1550 and 1790. It was absent in Kashmir in the 17th century as vouched by Bernier's remarks quoted above. It appearsat Madrasabout A. D. 1798, when it was introduced there by Clive, the Governor of Madras.

51. The Plant Lore of Ancient India*

In any history of the plant sciences of the world on a comprehensive scale the contribution of ancient India deserves a distinct place but in the absence of special monographs[1] dealing with the history of each nutritive or medicinal plant, this contribution hardly gets recognition in standard books on the plant sciences published outside India. This fact was pointedly brought to my notice by Dr. Birbal Sahni, F. R. S., our famous botanist of international reputation, who happened to read with appreciation my paper on the *History of the Fig* (*Añjira, Ficus Carica*)[2] and desired me to publish similar studies on the history of other Indian plants of medicinal or nutritive value. He also brought to my notice a valuable book on the *History of Plant Sciences* by Howard S. Reed,[3] a review of which he published in 1942 in *Current Science*, Calcutta (p. 369). While this book has two chapters[4]

> On the history of the plant lore of the ancients where Egypt and Assyria, Greece and Rome, China and early America are all adequately treated ... one looks in vain for a bare mention of Ancient India which was certainly well abreast of the times and gave much that the West has assimilated, though not always gracefully acknowledged.

Dr. Sahni rightly observes that the "Retrogressive Period" (Chapter IV of Reed's book) was retrogressive only so far as Occidental nations were concerned.

Side by side with my numerous studies[5] pertaining to the history of

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***Aryan Path*, March 1947, pp. 1-4.

1. See *Anjira* (*Ficus Carica* or Fig), Hindi. Bharatiya-Dravya Guna Granthamala No. 2, Vijnana-Parishad, Prayag, 1943. As. 12); *Somtha* (Dry Gingiber). Hindi. (B. D. G. Granthamala No. 3. Bhargava Pustakalaya, Benares, 1945. As. 12); *Triphala* (Three Fruits), Hindi. (Vijnana Parishad, Prayag, 2nd Edition, 1944. Rs. 2/4). All by PANDIT RAMESH BEDI, Ayurvedalamkara. (Available from him at the Himalaya Herbal Institute, Badami Bagh, Lahore (Panjab, India).

2. *Vide The New Indian Antiquary* (1941-2). Vol. IV, pp. 125-136.

3. (Chronica Botanica Co., Waltham, Mass, U. S. A. 1942).

4. *Ibid.*, pp. 7-30.

5. See *Bibliography* of my 202 Research Papers published in 1941: Items Nos. 15, 17, 20, 21, 23, 42, 60, 96, 100, 112, 113, 131, 135, 138, 151, 165, 170, 171 and 198 pertaining to Indian medicine. Other papers published since 1941 will be included in my *Revised Bibliography*, to be published shortly.

differentbranches of Sanskrit learning. I have been studying during the last fifteen years the history of Indian medicine and allied subjects and have published about forty papers[1] on this history in several Oriental journals. I, therefore, lost no time in studying Reed's book and was convinced of the justice of Dr. Sahni's observations on it, both in his review and in his letter of 12th January 1943.[2] This incentive to my studies was further enhanced by inquiries about the history of Indian crops from Dr. B. S. Kadam, then Assistant Agricultural Commissioner to the Government of India and now Director of Tobacco Research, deputed by the Government to the U. S. A. and Canada for further study of this subject. Last but not least came the inquiry from Dr. Sadgopal, chief chemist of the Hindustan Aromatic Company of Naini (Allahabad) about the history of Indian aromatics, which involved a study of the history of aromatic plants and their products. The cumulative effect of all these inquiries coming from responsible scholars was to encourage me to continue my studies in these subjects with greater zest. Some results of these studies have already been published in my papers on the "History of *Jawar* (*Holcus Sorghum*),"[3] "History of *Caṇaka* (*Cicerarietinum* or Gram),"[4] and the "History of Indian Cosmetics."[5]

My studies in the history of Indian plants on the strength of Indian sources have convinced me that so far this branch of Indology has been almost neglected by our Indologists and consequently our ancient Indian plant lore, for a systematic history of which there is abundant material in Jain, Buddhist and Brahmanical texts, has remained unnoticed in responsible Oriental journals during the last hundred years or so.

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1. A complete list of these papers is given in my Introduction to an edition of the *Carakasaṁhitā* to be published at Jamnagar by Dr P. M Mehta, Chief Medical Officer of the Jamnagar State, on behalf of his Ayurvedic Association.

2. Dr. Sahni wrote to me: "I have read with much interest your Notes on the "History of the Fig (*Ficus Carica*)." I think you would be doing a great service to Indian Botany if similarly you were to work out the history of our knowledge of other common Indian plants of medicinal or nutritive value. Our own ignorance concerning this subject is colossal and we can scarcely blame the Western writers if they ignore the ancient Hindu knowledge of the plant sciences."

3. *Vide B. C. Law Volume*, Part I, pp. 142-158 (Calcutta, 1945, edited by myself and friends).

4. *Vide Annals of the Bhandarkar Oriental Research Institute*, Poona (1946), Vol XXVI, pp. 89-105. Another paper on the "History of *Caṇaka* (B. C. 100 to 1850 A. D.)" is to appear shortly.

5. *Vide Journal of the University of Bombay* (1945), Vol. XIV, Part 2, pp. 41-52 and *New Indian Antiquary* (February-March 1945), Vol. VII.

In recent years a serious attempt to meet this deficiency has been made by Dr. G. P. Majumdar of Calcutta by the publication of his numerous papers and three important books.[1] Dr. Majumdar's studies are very valuable for all serious students of ancient Indian culture as they reveal this culture in plant perspective. In fact a perusal of these studies will not fail to impress the reader with Dr. Majumdar's spirit of reverence for plants, as the indebtedness of humanity to plants is too deep for words and too mystic to be understood by our present-day botanists. It is no wonder that certain plants were worshipped by the ancient Indians and are worshipped in India today.

The foregoing lines will, I believe, amply show the necessity of studying the history of ancient Indian plant lore on the strength of original sources, both Sanskrit and non-Sanskrit. For such a history the efforts of one or two scholars will be of no avail. Personally I have come to realise the importance of this study rather too late in my research career of thirty years. I am, therefore glad to find that a scholar from Lahore, Pandit Ramesh Bedi, Āyurvedālaṁkāra, has been independently working in this field and has already published the three learned monographs in Hindi under notice, for the benefit of students of Indian botany and Indian medical science.

Their author has not only studied *Āyurveda* thoroughly but has been practising it at Lahore. He has planned a series of monographs on many plants of medicinal value, of which these three give us a fair idea. Pandit Bedi was for six years Superintendent of the Botanical Gardens of the Gurukul University at Kangri (District Saharanpur, U.P.) and in this capacity he made a close study of Indian medicinal plants. It is no wonder, therefore, that his books should be very highly spoken of by professors of *Āyurveda* in the Gurukul University and the Hindu University, Benares, as also by eminent Āyurvedic physicians like Acharya Yadavji Trikamji of Bombay and others.

In these monograps — on *Añjīra*, *Soṁṭha* and Triphalā -- the last-named on the fruits of three plants, *Haraḍ (Terminalia Chebula)*, *Baheḍā (Belaric myrobalan)* and *Āṁlā (Emblic myrobalan)* –Pandit Bedi records exhaustive information on such points as the names of the plant in Hindi, Sanskrit, English and Latin and in different modern Indian languages; the plant's original habitat and where it is grown at present in India; its botanical description; its history, whether indigenous to India or imported

1. These books are (1) *Vanaspati* (Calcutta University, 1927); (2) *Upavana-Vinoda*, a treatise on arbori horticulture. (Indian Research Institute, Calcutta, 1935) and *Some Aspects of Ancient Indian Civilisation*. (Author, Calcutta, 1938).

and incorporated into the Indian *materia medica* ; its varieties and their medicinal properties ; its chemical analysis, showing its therapeutic value ; its properties as specified in Āyurvedic texts ; the current uses of the different parts of the plant, and the seasons at which the parts of medicinal value should be removed and stored ; the proportions in which the parts of the plant are to be used in medical preparations ; the processes of manufacturing medicines from the plant ; the general therapeutic value of the different parts and the effect of medicines prepared from the plant on the different parts of the human body ; the testing of these medical preparations in the light of modern medical research ; instructions for cultivation of the plant ; its economic value and its importance in national commerce ; and gives a bibliography pertaining to the plant with reference to the foregoing aspects. These monographs are prepared by Pandit Bedi to enable him later to publish an encyclopædic work on Indian *materia medica* under the title "*Bhāratīya Dravyaguṇa*."

This is really a scholarly approach, as no lasting literary edifice can be built unless all its bricks are properly shaped and well baked in the kiln of our investigation. I feel no doubt that these monographs will prove useful not only to the students and professors of *Āyurveda* but also to laymen, whose knowledge of Indian medicinal herbs is at present much confused, in the absence of authoritative monographs on each of these herbs, fully documented with extracts from standard ancient Āyurvedic texts and other literature, which give these healers of mankind their proper scientific and cultural perspective.

Though written in Hindi, these monographs deserve to be translated into English for wider circulation, as medicine is not the preserve of one nation but is for mankind in general. If disease is concomitant with life on this globe, the Science of life (*Āyurveda*) which provides remedies for disease in all its varieties, is the concern of the entire humanity. We live now in the age of atom-bombs, aeroplanes and radios and not in the age of *Caraka* and *Suśruta*. The dissemination of useful knowledge is a sacred obligation to be discharged by the scholars of the whole world and any medium which effects the widest possible dissemination of this knowledge deserves to be used for this purpose without any pride or prejudice.

Pandit Bedi's monographs, as mentioned, have already received scholarly approbation. His *Triphalā* has won him the award of the Nawab Sir Jamālkhān Gold Medal of Rs. 250/- from the All-India Āyurvedic Congress. Let me hope that these tokens of appreciation from brother-workers in the Āyurvedic field will encourage Pandit Bedi to continue his valuable monograph series (*Bhāratīya Dravya-guṇa Granthamālā*) so that we shall have before long an exact knowledge of our ancient

Indian plant lore properly evaluated in the light of modern botanical and medical writings, a list of which Pandit Bedi has recorded in each of these monographs.

To a student of the pure history of Indian plants like myself, Pandit Bedi's monographs will prove valuable as they contain under one cover many textual data, facilitating investigation into a plant's history by bringing together the available historical sources in all countries. For some of Indian plants have migrated far from their native habitat and are recognized as respectable residents of the modern civilized world, like the human *confrères* of the present-day nations. It is the business of the historian to investigate this migration of plants, which will be as enchanting a story as that of human migrations when it is completely studied and recorded with care and patience by a band of scholars working in unison in different parts of the world.

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INDEX

By A. D. Pusalker

Note :—"Asterisk(*)" refers to the particular page number and the footnote thereon, while "n" to the footnote on that page.

A

D

H

L

M

O

P

Q

R

S

T

U

Subject Index

(Com., Commentator or Commentary)

(By N A. GORE)

B

C

N

O

P

T